

FOR ADMIN. USE ONLY
Amendments-date & S or M

TIMBER HARVESTING PLAN

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM-63 (01-00)

FOR ADMIN. USE ONLY

THP No. 4-08-005/GAL-1

Dates Rec'd 3/11/2008

DEPT. OF FISH & GAME
APR 13 2009
REGION 2

THP Name: SQUIGGLY

(In the CDF FPS, this is "THP Description")

Date Filed 3/21/2008

Date Approved APR 10 2009

Date Expires APR - 9 2012

If this is a Modified THP, check box: ☐

Extensions 1) ☐ 2) ☐

This Timber Harvesting Plan (THP) form, when properly completed, is designed to comply with the Forest Practice Act (FPA) and Board of Forestry and Fire Protection rules. See separate instructions for information on completing this form. NOTE: The form must be printed legibly in ink or typewritten. The THP is divided into six sections. If more space is necessary to answer a question, continue the answer at the end of the appropriate section of your THP. If writing an electronic version, insert additional space for your answer. Please distinguish answers from questions by *font change* bold or underline.

SECTION I - GENERAL INFORMATION

This THP conforms to my/our plan and upon approval, I/we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules.

1. TIMBER OWNER(S) OF RECORD: Name Sierra Pacific Industries

Address P.O. Box 132

City Martell State CA Zip 95654 Phone (209) 223-7170

Signature Eddy 5/10/08 Date 3/5/08

NOTE: The timber owner is responsible for payment of a yield tax. Timber Yield Tax information may be obtained at the Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0060; phone 1-800-400-7115; BOE Web Page at <http://www.boe.ca.gov>.

2. TIMBERLAND OWNER(S) OF RECORD: Name Sierra Pacific Industries

Address P.O. Box 132

City Martell State CA Zip 95654 Phone (209) 223-7170

Signature Eddy 5/10/08 Date 3/5/08

3. LICENSED TIMBER OPERATOR(S): Name Unknown at this time Lic. No. _____

(If unknown, so state. You must notify CDF of LTO prior to start of operations)

Address _____

City _____ State _____ Zip _____ Phone _____

Signature _____ Date _____

4. PLAN SUBMITTER(S): Name Sierra Pacific Industries

Address P.O. Box 132

City Martell State CA Zip 95654 Phone (209) 223-7170

(Submitter must be from 1, 2, or 3 above. He/she must sign below. Ref. Title 14 CCR 1032.7 (a))

Signature Eddy 5/10/08 Date 3/5/08

5. a. List person to contact on-site who is responsible for the conduct of the operation. If unknown, so state and name must be provided for inclusion in the THP prior to start of timber operations.

Name Unknown At This Time

Address _____

City _____ State _____ Zip _____ Phone _____

- b. ☒ Yes ☐ No Will the timber operator be employed for the construction and maintenance of roads and landings during conduct of timber operations? If no, who is responsible?

- c. Who is responsible for erosion control maintenance after timber operations have ceased and until certification of the Work Completion Report? If not the LTO, then a written agreement must be provided per 14 CCR 1050 (c).

The LTO is responsible; which is unknown at this time.

6. a. Expected date of commencement of timber operations:
☒ date of THP conformance, or ☐ _____ (date) _____

- b. Expected date of completion of timber operations:
☒ 3 years from date of THP conformance, or ☐ _____ (date) _____

7. The timber operation will occur within the:
- | | |
|---|---|
| <input type="checkbox"/> COAST FOREST DISTRICT | <input type="checkbox"/> The Tahoe Regional Planning Authority Jurisdiction |
| <input type="checkbox"/> Southern Subdistrict of the Coast F. D. | <input type="checkbox"/> A County with Special Regulations, identify:
_____ |
| <input checked="" type="checkbox"/> SOUTHERN FOREST DISTRICT | |
| <input type="checkbox"/> High use subdistrict of the Southern F. D. | <input type="checkbox"/> Coastal Zone, no Special Treatment Area |
| | <input type="checkbox"/> Special Treatment Area(s), type and identify:
_____ |
| <input type="checkbox"/> NORTHERN FOREST DISTRICT | |
| | <input type="checkbox"/> Other
_____ |

8. Location of the timber operation by legal description:
Base and Meridian: ☒ Mount Diablo ☐ Humboldt ☐ San Bernardino

Section	Township	Range	Acreage	County	Assessor's Parcel Number (Optional)
All of the listed APN are included within the SPI Option A					
13	T7N	R15E	2	Calaveras	004-002-004-000
14	T7N	R15E	14	Calaveras	004-002-002-000
15	T7N	R15E	1	Calaveras	004-002-001-000
22	T7N	R15E	69	Calaveras	004-002-012-000 & 004-002-014-000
23	T7N	R15E	109	Calaveras	004-002-006-000 & 004-002-011-000
24	T7N	R15E	27	Calaveras	004-002-004-000
26	T7N	R15E	156	Calaveras	004-009-002-000 & 004-009-009--000
27	T7N	R15E	21	Calaveras	004-009-001-000 & 004-009-008--000
19	T7N	R16E	37	Calaveras	002-010-002-000 & 002-010-002-000
30	T7N	R16E	18	Calaveras	002-011-003-000

TOTAL ACREAGE 452 (Logging Area Only)

Planning Watershed: CALWATER Version, Identification Number, and Name: 6532.600505 Lower Blue Creek
U.S. Geological Survey (USGS) Quadrangle name(s) and date(s): Garnet Hill 1979 (revised in 1985) and Calaveras Dome 1979 (revised in 1991)

9. ☐ Yes ☒ No Has a Timberland Conversion been submitted? If yes, list expected approval date or permit number and expiration date if already approved.
10. ☐ Yes ☒ No Is there an approved Sustained Yield Plan for this property? Number _____ Date app.
☐ Yes ☒ No Has a Sustained Yield Plan been submitted but not approved? Number _____ Date sub.

11. ☐ Yes ☒ No Is there a THP or NTMP on file with CDF for any portion of the plan area for which a Report of Satisfactory Stocking has not been issued by CDF?
If yes, identify the THP or NTMP number(s):
- ☐ Yes ☒ No Is there a contiguous even aged unit with regeneration less than five years old or less than five feet tall? If yes, explain. Ref. Title 14 CCR 913.1 (933.1, 953.1) (a)(4).
12. ☒ Yes ☐ No Is a Notice of Intent necessary for this THP?
☒ Yes ☐ No If yes, was the Notice of Intent posted as required by 14 CCR 1032.7 (g)?

13. RPF preparing the THP: Name Frank Mulhair RPF Number 2625
Address P.O. Box 132
City Martell State CA Zip 95654 Phone 209-223-7170

- a. ☐ Yes ☒ No I have notified the plan submitter(s), in writing, of their responsibilities pursuant to 14 CCR 1035 of the Forest Practice Rules.
☐ Yes ☒ No I have notified the timber owner and the timberland owner of their responsibilities for compliance with the Forest Practice Act and rules, specifically the stocking requirements of the rules and the maintenance of erosion control structures of the rules.

The plan submitter is the same as the timberland owner and the timber owner. The plan submitter and their representatives are actively involved in timber harvest plan preparation and execution. They are well aware of their responsibilities pursuant to 14 CCR 1035 and their responsibilities regarding the stocking requirements and maintenance of erosion control structures as described in the Forest Practice Rules. Sierra Pacific Industries understands that they are responsible for erosion control maintenance after certification of the Work Completion Report.

- b. ☒ Yes ☐ No I will provide the timber operator with a copy of the portions of the approved THP as listed in 14 CCR 1035 (e). If "no", who will provide the LTO a copy of the approved THP?

I or my supervised designee will meet with the LTO prior to commencement of operations to advise of sensitive conditions, provisions of the plan pursuant to 14 CCR 1035.2 and supply the LTO with an approved copy of this THP.

- c. I have the following authority and responsibilities for preparation and administration of the THP and timber operation. (Include both work completed and work remaining to be done):

As a Forester for Sierra Pacific Ind., I am responsible for the preparation, submission, and administration of the THP (which includes any necessary amendments to the THP). The LTO shall be responsible for supervising harvest operations and for compliance with the plans' content. For the logging operations and project work for this THP, I have been retained as the RPF, available to provide professional advice to the licensed timber operator and timberland owner upon request throughout the active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations.

- d. Additional required work requiring an RPF, which I do not have the authority or responsibility to perform:

None.

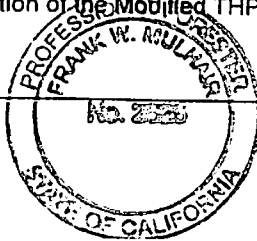
- e. After considering the rules of the Board of Forestry and Fire Protection and the mitigation measures incorporated in this THP, I have determined that the timber operation:

- ☐ will have a significant adverse impact on the environment. (Statement of reasons for overriding considerations contained in Section III).
☒ will not have a significant adverse impact on the environment.

Registered Professional Forester: I certify that I, or my supervised designee, personally inspected the THP area, and this plan complies with the Forest Practice Act, the Forest Practice Rules and the Professional Foresters Law. If this is a Modified THP, I also, certify that: 1) the conditions or facts stated in 14 CCR 1051 (a) (1) - (16) exist on the THP area at the time of submission, preparation, mitigation, and analysis of the THP and no identified potential significant effects remain undisclosed; and 2) I, or my supervised designee, will meet with the LTO at the THP site, before timber operations commence, to review and discuss the contents and implementation of the Modified THP.

Signature

Frank Mulhair



Date 3-5-08

SECTION II - PLAN OF TIMBER OPERATIONS

NOTE: If a provision of this THP is proposed that is different than the standard rule, the explanation and justification should normally be included in Section III unless it is clearer and better understood as part of Section II.

14. a. Check the Silvicultural methods or treatments allowed by the rules that are to be applied under this THP. Specify the option chosen to demonstrate Maximum Sustained Production (MSP) according to 14 CCR 913 (933, 953) .11. If more than one method or treatment will be used show boundaries on map and list approximate acreage for each.

<input checked="" type="checkbox"/> Clearcutting	359 ac.	<input type="checkbox"/> Shelterwood Prep. Step	_____ac.	<input type="checkbox"/> Seed Tree Seed Step	_____ac.
		<input type="checkbox"/> Shelterwood Seed Step	_____ac.	<input type="checkbox"/> Seed Tree Removal Step	_____ac.
		<input checked="" type="checkbox"/> Shelterwood Removal Step	24 ac.		
<input checked="" type="checkbox"/> Selection	53 ac.	<input type="checkbox"/> Group Selection	_____ac.	<input type="checkbox"/> Transition	_____ac.
<input type="checkbox"/> Commercial Thinning	_____ac.	<input type="checkbox"/> Road Right of Way	_____ac.	<input type="checkbox"/> Sanitation Salvage	_____ac.
<input type="checkbox"/> Special Treatment Area	_____ac.	<input type="checkbox"/> Rehab. of Understocked Area	_____ac.	<input type="checkbox"/> Fuelbreak	_____ac.
<input type="checkbox"/> Alternative	_____ac.	<input type="checkbox"/> Conversion	_____ac.	<input type="checkbox"/> Non-Timberland Area	_____ac.

➡ Total acreage 436 ac.: Explain if total is different from that in 8. MSP option chosen: (a) ☒ (b) ☐ (c) ☐

Note: Item #8 includes 16 additional acres for the purpose of utilizing tail-blocks

This THP conforms to SPI's approved Option A demonstration of MSP on file with CDF at its Southern Forest District Office THP # 4-98-038 ELD

b. If Selection, Group Selection, Commercial Thinning, Sanitation Salvage or Alternative methods are selected the post harvest stocking levels (differentiated by site if applicable) must be stated. Note mapping requirements of 1034 (x) (12).

Post harvest stocking levels will be as follows:

Selection: Areas designated for the selection Silviculture are mostly site 1. At least 100 square feet per acre of basal area shall be retained. The average residual stocking will be 100 to 120 sq. ft. of basal area per acre.

c. ☐ Yes ☒ No Will evenage regeneration step units be larger than those specified in the rules (20 acres tractor, 30 acres cable)? If yes, provide substantial evidence that the THP contains measures to accomplish any of subsections (A) - (E) of 14 CCR 913 (933, 953) .1 (a) (2) in Section III of the THP. List below any instructions to the LTO necessary to meet (A) - (E) not found elsewhere in the THP. These units must be designated on map and listed by size.

d. Trees to be harvested or retained must be marked by or marked under the supervision of the RPF. Specify how the trees will be marked and whether harvested or retained.

HARVEST trees within the **SELECTION** Silviculture shall be marked with **BLUE** paint prior to operations with a painted mark above and below stump height.

HARVEST trees within the **SHELTERWOOD REMOVAL STEP** Silviculture shall be marked with **BLUE** paint prior to operations with a painted mark above and below stump height.

For the **CLEARCUT** (CC) units, the boundaries have been designated on the ground with pink flagging. Additionally yellow "X's" shall be painted on residual trees facing into the unit prior to the commencement of operations. SPI may choose to retain trees within CC units either individually or in groups. Groups of retention trees shall be designated for leaving by flagging the perimeter of the groups with a combination of Orange and White flagging. Any dispersed retention trees retained shall be marked with orange paint above and below stump height.

☐ Yes ☒ No Is a waiver of marking by the RPF requirement requested? If yes, how will LTO determine which trees will be harvested or retained? If yes and more than one silvicultural method, or Group Selection is to be used, how will LTO determine boundaries of different methods or groups?

e. Forest products to be harvested: Sawlogs, Fiber logs, Biomass, and Fuelwood

- f. ☒ Yes ☐ No Are group B species proposed for management?
☐ Yes ☒ No Are group B or non-indigenous A species to be used to meet stocking standards?
☐ Yes ☒ No Will group B species need to be reduced to maintain relative site occupancy of A species?

If any answer is yes, list the species, describe treatment, and provide the LTO with necessary felling and slash treatment guidance. Explain who is responsible and what additional follow-up measures of manual treatment or herbicide treatment are to be expected to maintain relative site occupancy of A species. Explain when a licensed Pest Control Advisor shall be involved in this process.

For more on the management of group B species, please see item #35; Section II

g. Other instructions to LTO concerning felling operations.

The LTO shall instruct fallers to protect as much healthy regeneration as possible. See THP Item #38, "Advanced Regeneration and Leave Trees within Clearcut Units".

- h. ☒ Yes ☐ No Will artificial regeneration be required to meet stocking standards?
i. ☒ Yes ☐ No Will site preparation be used to meet stocking standards? If yes, provide the information required for a site preparation addendum, as per 14 CCR 915.4 (935.4, 955.4).

SITE PREPARATION ADDENDUM

A. IS SITE PREPARATION REQUIRED TO MEET STOCKING? Yes, site preparation will be necessary to meet stocking. Site preparation shall be used in the CLEAR CUT units to meet the point count stocking within 5 years, to decrease the fire hazard, to increase the amount of planting opportunities, and to bring more acreage under full stocking levels, as opposed to minimum stocking standards. Site preparation will not be necessary to meet stocking in the SHELTERWOOD REMOVAL units, but it may be used to manage forest fuels and/or attain a more optimum stocking level.

B. METHODS OF SITE PREPARATION (Three): Mechanical, Broadcast Burning and Chemical Site Preparation.

- Mechanical Site Preparations**- On slopes less than 40%, tractors and excavators shall be used to mechanically clear brush and logging slash within the CLEAR CUT and SHELTERWOOD REMOVAL units. Excavators may be used to reach into Class III ELZs to create planting opportunities. On slopes less than 40%, clearing areas shall be contour ripped to reduce compaction and improve aeration of the soil. Ripping shall not occur under the canopy drip line of Black Oak planned for retention. Oaks to be retained shall be designated in the field with either a paint mark or flagging.

As per FPR 954.2 (k) we are requesting an exception to FPR 954.2 (j). On slopes over 40% and on slopes over 30% which lead without flattening to Class II watercourses, less than 50% of the soil surface shall be disturbed during mechanical site prep operations. To maintain less than 50% soil surface disturbance in the CLEAR CUT SHELTERWOOD REMOVAL units, only track excavators will be used. The low ground pressure of the equipment and the ability to reach 25' to each side without moving will allow for increased protection of soil and water quality. By allowing this exception low impact equipment can manipulate ground fuels and vegetation such that it can be piled for future disposal thus increasing seedling survival, faster stand regeneration, installation of additional erosion control structures, and precise placement of large woody debris. Mechanical operations with tracked excavators shall not occur on slopes over 50% or slopes over 40% where the erosion hazard rating is high.

The objective of all mechanical site prep operations is to leave as much organic material as possible on site while providing necessary planting locations and increased fire protection. Snags and down logs shall be retained and to the greatest degree possible shall not be pushed into slash piles. Mechanical site preparation shall not occur within established EEZs, ELZs, and WLPZs, except for the use of excavators reaching into the ELZs to create planting opportunities. All piles shall be burned except for piles left for wildlife purposes. Piles shall not be left in the areas designated as Hazard Reduction Zones.

As per FPR 957.5, when burning piles or concentrations of slash to meet the slash treatment requirements as specified in the rules, such burning shall be done as follows: (a) Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning. (b) The piles and concentrations shall be burned at a safe time during the first wet fall or winter or other safe period following piling and according to laws and regulations. Piles and concentrations that fail to burn sufficiently to remove the fire hazard shall be further treated to eliminate that hazard. All necessary precautions shall be taken to confine such burning to the piled slash.

2. **Broadcast Burning Site Preparation** - The majority of broadcast burning will occur on slopes over 40% but topography and fire safety will determine where broadcast burning will occur. Fire lines will be constructed by tractors and/or by hand to contain the fire in the Clearcut units.

The CLEAR CUT units that cannot be mechanically piled the following will apply to burning around watercourses.

1. Broadcast burning will not occur in WLPZs.
2. In the CLEAR CUT units with Interior Class III watercourses, or which have Class III watercourses as a unit boundary, the following techniques shall be used to maintain large woody debris within the ELZs while providing safe broadcast burning conditions:
 - a) Directionally falling timber away from the Class III ELZ.
 - b) Fire shall be backed down (on contour) through the ELZ, when conditions favor a cool burn.
 - c) Spot firing technique will be used through the ELZ to lower the heat intensity of the burn.

Maintenance of a cool, controlled fire within the ELZ will generally maintain large woody debris, (100 and 1000 hour fuels) and desirable residual trees.

3. **Herbicide Application** - SPI has used herbicides in the past for vegetation management in certain even-aged management units. If herbicides are used, their use and application will be prescribed on a site-specific basis by a licensed PCA. See THP Section IV for more discussion on herbicide use.

C. EQUIPMENT USED: Tractors and tracked excavators will be used to pile brush and logging slash. Tractors, tracked excavators, and hand tools will be used to construct firelines for burning. Hand held incendiary devices shall be used while burning.

D. METHODS FOR PROTECTING RESIDUAL TREES: Groups of group A tree species and some hardwoods (when present) may be retained within the CLEAR CUT units. The groups shall be flagged off with a combination of orange and white flagging for retention. In addition, to the trees and groups being retained, the LTO logging these units shall also be instructed by the RPF to protect as much advanced pine and fir regeneration as operationally feasible. Prior to site prep operations the site prep contractor will be informed in writing of the desirable trees that are to be retained/protected.

In areas where broadcast burning may occur, control lines shall be established to help contain burn and keep it from entering undesired areas. Required retention groups shall not be established in areas where broadcast burning is likely to occur, unless no other alternative presents itself. Individual trees remaining after harvest or established retention trees shall be protected as practical given the prescription requirements and environmental conditions of when the burn occurs. In all cases, techniques such as back burning and spot firing shall be used to protect any and all desired retention trees and/or groups.

E. EXCEPTIONS OR ALTERNATIVES: As described earlier in the site preparation addendum, we are requesting an exception to FPR 954.2 (j). On slopes over 40% and on slopes over 30% which lead without flattening to Class II watercourses, less than 50% of the soil surface shall be disturbed during mechanical site prep operations. To maintain less than 50% soil surface disturbance in the CLEAR CUT units, only track excavators will be used. The low ground pressure of the equipment and the ability to reach 25' to each side without moving will allow for increased protection of soil and water quality. Mechanical operations with tracked excavators shall not occur on slopes over 50% or slopes over 40% where the erosion hazard rating is high.

F. TYPE OF SITE PREP ACTIVITY: CLEAR CUT units will be tractor piled with the possibility of small amounts of broadcast burning needed to complete the site preparation activities of each unit. There are no CLEAR CUT units that involve only broadcast burning.

G. PERSONS RESPONSIBLE FOR SITE PREPARATION ACTIVITIES: The Sierra Pacific Industries representative is Craig Ostergaard, P.O. Box 132 Martell, Ca 95654, (209) 223-7170. For the site preparation work of this THP, I have been retained as the RPF, available to provide professional advice to the licensed timber operator and timberland owner upon request throughout the active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations, including making any necessary amendments to the THP.

RPF Signature: Craig Ostergaard RPF# 2427

18. Soil Stabilization: In addition to the standard waterbreak requirements describe soil stabilization measures or additional erosion control measures to be implemented and the location of their application. See requirements of 14 CCR 916.7 (936.7, 956.7), and 923.2 (943.2, 963.2) (m), and 923.5 (943.5, 963.5) (f).
1. If areas of soil disturbance greater than 800 sq. ft. in size occur within any WLPZ on the plan area the following soil stabilization measures shall apply:

Low	Moderate	High	Extreme
300'	200'	150'	100'
10% or less	11-25%	26-50%	≥50%
200'	150'	100'	75'
150'	100'	75'	50'
100'	75'	50'	50'

MAXIMUM DISTANCE BETWEEN WATERBREAKS

If more than one rating is checked, areas must be delineated on map down to 20 acres in size (10 acres for high and Extreme EHRs in the Coast District).

17. Erosion Hazard Rating: Indicate Erosion Hazard Ratings present on THP. (Must match EHR worksheets)
- [X] Low [X] Moderate [X] High [] Extreme

NOTE: Cable yarding operations, which result in less ground disturbance and residual tree damage, may be performed in any tractor operating area.

- GROUND BASED:
- a. [X] Tractor, including end/long lining d. [] Cable, ground lead
- b. [X] Rubber tired skidder, Forwarder e. [X] Cable, high lead
- c. [X] Feller buncher f. [X] Cable, Skyline
- Other
- g. [] Animal
- h. [] Helicopter
- i. [] Other
- SPECIAL



16. Indicate type of yarding system and equipment to be used:

HARVESTING PRACTICES

15. Is this THP within an area that the Board of Forestry and Fire Protection has declared a Zone of Infestation or Infection, pursuant to PRC 4712 - 4718? If yes, identify feasible measures being taken to mitigate adverse infestation or infection impacts from the timber operation. See 14 CR 917 (937, 957) .9 (a).
- a. [] Yes [X] No
- b. [] Yes [X] No
- If outside a declared zone, are there any insect, disease or pest problems of significance in the THP area? If yes, describe the proposed measures to improve the health, vigor, and productivity of the stand(s).

PESTS

- J. If the rehabilitation method is chosen provide a regeneration plan as required by 14 CCR 913 (933, 953) .4 (b). Not applicable

TRACTOR SITE PREPARATION CONTRACTIONS To be named at a later date.

H. OPERATING PERIOD: Site preparation, by tractor or excavator, shall be done within one year after the logging operations are completed. Slash piles shall be burned at a safe time during the wet fall, winter, early spring or other safe periods following piling and according to current laws and regulations. Broadcast burning generally will be completed within two years after logging unless fire weather prevents safe burning conditions. Tractors may be used during the winter period in extended dry periods to control escaped fires. Ponderosa pine, Sugar pine, Douglas-fir and white fir shall be planted following the completion of site preparation operations. Some site preparation piles (non-landing piles) may be retained outside of the hazard reduction zone to provide a diversity of structural habitat.

FROM G. PLAN

- Areas disturbed prior to October 15th shall be seeded with an SCS (Soil Conservation Service) approved grass-seed mixture by October 15th of the year of disturbance.
- Areas disturbed after October 15th shall be seeded within 10 days of disturbance.
- Seeded areas shall be covered with a minimum of 2 inches of straw mulch over 75% of the disturbed area.
- Seed density immediately after sowing shall exceed 50 pounds per acre.

2. All skid trail approaches to landings and roads, which have a slope gradient of greater than 30 %, shall be seeded and mulched up to and over the first waterbar, if, in the opinion of the RPF, the area has the potential to transport sediment into a nearby watercourse. The area shall be seeded with a seed blend and mulched with straw to an average depth of 2 inches with a minimum coverage of 75%. Logging slash may be used to mulch landings and skid trails, when available or appropriate. Fall seeding, for the purpose of erosion control, shall occur late enough that rains will not germinate the seed before snowfall, but no later than November 15th. If operations continue after November 15th (within the winter operating period) then seeding and mulching shall occur immediately upon or prior to shut down periods and immediately upon conclusion of the operations for the immediate area. Mulching shall be used for stabilization of the disturbed areas for the first winter period following the timber operations.

- ⇒ 3. ~~Road maintenance will utilize out-sloped road prisms and rolling dips where feasible to improve road drainage and thus decrease the potential for sediment transportation and water accumulation.~~
4. ~~Culverts along the existing haul road that appear to not have the ability to function until the next harvest entry shall be removed and replaced with a new culvert or a rolling dip prior to the completion of operations.~~
5. ~~Wind rowing, contour ripping, and leaving large woody debris on site will be employed to mitigate potential erosion and sediment runoff concerns of site preparation measures.~~

19. [] Yes [X] No Are tractor or skidder constructed layouts to be used? If yes, specify the location and extent of use:

⇒ 20. [X] Yes [] No Will ground based equipment be used within the area(s) designated for cable yarding? If yes, specify the location and for what purpose the equipment will be used. See 14 CCR 914.3 (934.3, 954.3) (e).

Areas that are designated for cable yarding may use ground-based equipment for tractor longline harvesting from existing, stable seasonal roads. Tractor longline harvesting will assist cable operations in areas of poor deflection or which have short reaches, such as at turns in the haul road and where cable corridors are too short to economically cable log. Tractors shall be limited by staying on the traveled surface of the existing stable seasonal roads while longlining.

21. Within the THP area will ground based equipment be used on:
- a. [] Yes [X] No Unstable soils or slide areas? Only allowed if unavoidable.
 - b. [] Yes [X] No Slopes over 65%?
 - c. [] Yes [X] No Slopes over 50% with high or extreme EHR?
 - d. [] Yes [X] No Slopes between 50% and 65% with moderate EHR where heavy equipment use will not be restricted to the limits described in 14 CCR 914 (934, 954) .2 (f) (2) (i) or (ii)?
 - e. [] Yes [X] No Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake?

If a. is yes, provide site specific measures to minimize effect of operations on slope stability below. Provide explanation and justification in section III as required per 14 CCR 914 (934, 954) .2 (d). CDF requests the RPF consider flagging tractor road locations if "a." is yes.

If b., c., d. or e. is yes:

- 1) The location of tractor roads must be flagged on the ground prior to the PHI or start of operations if a PHI is not required, and
- 2) you must clearly explain the proposed exception and justify why the standard rule is not feasible or would not comply with 14 CCR 914 (934, 954).

The location of heavy equipment operation on unstable areas or any use beyond the limitations of the standard rules must be shown on the map. List specific instructions to the LTO below.

INSTRUCTIONS TO THE LTO

Item	Map Designation	Instructions: The following are instructions to the LTO when harvesting trees from these areas.
21 (c)	Slopes greater than 50% with High EHR	Slopes greater than 50% with High EHR exist within the area designated for cable logging; Unit 338. Ground based equipment shall not be used on these slopes within Unit 338.
21 (d)	Slopes between 50% - 65% with Moderate EHR	On slopes from 50% to 65% with Moderate EHR, ground based equipment shall be limited to: Existing tractor roads that do not require reconstruction. Upon completion of yarding operations and prior to the winter period, water-bars shall be constructed at least to the High EHR standard. Trees cut on slopes greater than 50% shall be end-lined to existing skid trails that are on slopes less than 50%. No mechanical site preparation or winter operations shall be allowed on these hill slopes.
21(e)	Slopes over 50% which lead without flattening	On slopes over 50% that lead without flattening, ground based equipment shall be limited to: Existing tractor roads that do not require reconstruction. Upon completion of yarding operations and prior to the winter period, water-bars shall be constructed at least to the High EHR standard. Trees cut on slopes greater than 50% shall be end-lined to existing skid trails that are on slopes less than 50%. No mechanical site preparation or winter operations shall be allowed on these slopes.

Two unstable areas exist within this THP and are mapped in Section II depicted within the EHR Maps.

UNSTABLE AREA DESCRIPTIONS

U1	<p>Description: This unstable area is directly adjacent to Unit 343; it borders the southwest corner of the harvest unit. At this location there was a legacy road that lead down to the nearby class II WLPZ. It is not possible to determine if the legacy road resulted in the slide as the road at this location is no longer present. There is some evidence that this site may have included a consolidation of skid trails and a haul road; possibly a landing. It is likely, considering the hill slope, that the legacy road was constructed using a 100% fill grade at this location. Additionally this Road / landing appears to have been located within a head wall of a swale. Currently a class III watercourse is developing.</p> <p>All of the smaller material has washed down slope demonstrating no significant deposition of material. The site contains abundant large boulders. No perched material is present on the hill slope. Small conifers have been established and are abundantly growing on the site. The main haul road is located directly upslope from the slide and does not appear to be impacting the slide. The above located haul road shall be drained such that run off from the road will not focus surface flows onto the slide.</p> <p>The LEGACY ROAD directly outside of the unstable area is densely occupied with small conifers. Some locations along this legacy road are demonstrating signs of movement of the outside fill; expressed in surface cracking and slumping. Abundant vegetation and soil duff layer exist down slope of this legacy road. These potential outside fill failures are considered part of the unstable area. The legacy road cannot be reached by conventional methods and the potential for fill failure appears to be greatly reduced by the abundant occurrence of on site vegetation. The main haul road is located approximately 100 feet upslope and does not appear to be impacting the legacy road. The above located haul road shall be drained such that run off from the road will not focus surface flows onto the legacy road.</p> <p><u>No timber operations shall occur on this unstable area</u></p>
U2	<p>Description: This unstable area is directly adjacent to Unit 352. This unstable area is a bank slump approximately 60 feet by 30 feet that extends up the hill slope of a class III watercourse. The mass appeared to have moved all at once, as there is little to no evidence of leaning trees. Skid trails are located directly upslope of this slump but they do not appear to be linked to the mass movement. This area has been removed from the boundary of the harvest unit and equipment shall not be allowed within the unstable area. The RPF shall identify the location of drainages facilities on the skid trail above the unstable area to the extreme EHR spacing for a distance of 200 feet. No timber operations shall occur on this unstable area</p>

22. ☐ Yes ☒ No

Are any alternative practices to the standard harvesting or erosion control rules proposed for this plan? If yes, provide all the information as required by 14 CCR 914 (934, 954) .9 in Section III. List specific instructions to the LTO below.

WINTER OPERATIONS

23. a. ☒ Yes ☐ No

Will timber operations occur during the winter period? If yes, complete "b, c or d". State in space provided if exempt because yarding method will be cable, helicopter, or balloon.

b. ☒ Yes ☐ No

Will mechanical site preparation be conducted during the winter period. If yes, complete "d".

c. ☐

I choose the in-lieu option as allowed in 14 CCR 914 (934, 954).7(c). Specify below the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3), if there will be no winter operations in these areas, so state.

d. ☒

I choose to prepare a winter operating plan per 14 CCR 914 (934, 954).7 (b).

(1) Erosion Hazard rating: The EHR for the plan area is mostly moderate with some areas exhibiting low and high EHR. However, to afford extra protection, all waterbarring on skid trails with moderate EHR, used during the winter period shall be spaced to the high EHR standards. Additionally, any tractor areas with high EHR used during the winter period shall be waterbarred to the extreme EHR standards. There are no areas with an extreme erosion hazard rating within this THP.

(2) Mechanical site preparation methods: On slopes less than 40%, tractors and excavators shall be used to mechanically clear brush and logging slash within the Clearcut units and within other areas of high concentrations of brush and/or logging slash. Mechanical operations shall not occur on slopes over 40% during the winter period. The clearing areas shall be contour ripped to reduce compaction and improve aeration of the soil. The objective is to leave as much organic material as possible on site while providing necessary planting locations and adequate fire protection. Snags and down logs shall be retained as much as possible. Broadcast burning maybe used on areas with slopes over 40% and may be used in scattered areas with slopes less than 40%.

(3) Yarding System: Tractor yarding or the use of tractors for construction of landings, or tractor roads shall be done only during dry rainless periods and only if soils are not saturated.

(4) Operating Period: The site preparation done by tractors shall be completed within one year after the commencement of logging operations. Slash piles shall be burned at a safe time during the wet fall or early spring. Tractor use during this period for mechanical site preparation, timber operations, and to control escaped fire shall only occur during extended dry rainless periods, when saturated soil conditions do not exist.

(5) Erosion Control facilities timing: Erosion control structures and facilities shall be installed on all constructed skid trails and tractor roads prior to the end of the day if the U.S. Weather Service forecasts a "chance" of rain before the next day, and prior to the weekend or other shutdown periods. Drainage facilities removed or rendered non-functional by road preparation and grading operations to make roads suitable for haul or administrative use shall be reinstalled prior to October 15th of the year of operations. For those roads in use after October 15th, road drainage facilities shall be reinstalled immediately upon completion of use or prior to the end of any day when there is a forecast of a "chance" of rain.

(6) Consideration of form of precipitation-rain or snow: The proposed plan is in an elevation belt which is likely to receive precipitation both in the form of rain and snow, depending on how cold (temperature) the storm system is moving through the area. Timber operations and/or mechanical site prep activities shall only take place during extended dry rainless periods.

(7) Ground Conditions: Not applicable. Timber operations and/or mechanical site prep activities shall only take place during extended dry rainless periods when saturated soil conditions do not exist.

(8) Silvicultural system-ground cover: Within some of Clearcut units, the ground cover is made up of a carpet of bear clover, and/or a duff layer or woody debris cover. The objective is to leave as much organic material as possible on site while providing necessary planting opportunities and adequate fire protection.

(9) Operations within the WLPZ: Heavy equipment shall not operate in the WLPZ.

(10) Equipment use Limitations: Mechanical site prep operations, tractor yarding or the use of tractors for construction of landings, or tractor roads shall be done only during dry, rainless periods and only if soils are not saturated.

Saturated soil conditions means that site conditions are sufficiently wet that timber operations displace soils in yarding or mechanical site preparation areas or displace road and landing surface materials in amounts sufficient to cause turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or in downstream Class I, II, III, or IV waters that is visible or would violate applicable water quality requirements.

In yarding and site preparation areas, this condition may be evidenced by: a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, b) inadequate traction without blading wet soil, c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, or d) creation of ruts greater than would be normal following a light rainfall.

On logging roads and landing surfaces, this condition may be evidenced by: a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, b) inadequate traction without blading wet soil, c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, d) pumping of road surface materials by traffic, or e) creation of ruts greater than would be created by traffic following normal road watering, which transports surface material to a drainage facility that discharges directly into a watercourse.

Operations may take place during hard frozen conditions. **Hard frozen conditions** means those frozen conditions where loaded and unloaded vehicles can travel without sinking into the road surfaces to a depth of more than 6" over a distance of more than 25'

(11) Known unstable areas: There is two known unstable areas associated with this THP. Both unstable areas are directly adjacent to, but outside of, areas designated for Tractor operations. U1 is located directly adjacent to the south west corner of Unit #343 while U2 is located directly adjacent the west boundary of to Unit #352. No operations shall occur on these unstable areas during the winter period; equipment exclusion zone.

NOTE: "Winter period" means the period between November 15 and April 1, except as noted under special County Rules at Title 14 CCR 925.1, 926.18, 927.1, and 965.5... (a) except as otherwise provided in the rules: (1) All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations. (2) Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.

ROADS AND LANDINGS

24. Will any roads be constructed? ☒ Yes ☐ No, or reconstructed? ☒ Yes ☐ No. If yes, check items "a." through "g."
Will any landings be constructed? ☒ Yes ☐ No, or reconstructed? ☒ Yes ☐ No. If yes, check items "h." through "k."
- a. ☐ Yes ☒ No Will new or reconstructed roads be wider than single lane with turnouts?
b. ☐ Yes ☒ No Are logging roads proposed in areas of unstable soils or known slide-prone areas?
c. ☐ Yes ☒ No Will new roads exceed a grade of 15% or have pitches of up to 20% for distances greater than 500 feet? Map must identify any new or reconstructed road segments that exceed an average 15% grade for over 200 feet.
d. ☐ Yes ☒ No Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of THP Item 27 a. will satisfy required documentation.
e. ☐ Yes ☒ No Will roads be located across more than 100 feet of lineal distance on slopes over 65%, or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
f. ☒ Yes ☐ No Will any roads or watercourse crossings be abandoned?
g. ☐ Yes ☒ No Are exceptions proposed for flagging or otherwise identifying the location or roads to be constructed?
h. ☐ Yes ☒ No Will any landings exceed one half acre in size? If any landing exceeds one quarter acre in size or requires substantial excavation the location must be shown on the map.
i. ☐ Yes ☒ No Are any landings proposed in areas of unstable soils or known slide prone areas?
j. ☐ Yes ☒ No Will any landings be located on slopes over 65% or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?
k. ☒ Yes ☐ No Will any landings be abandoned?

25. If any section in "item 24" above is answered yes, specify site-specific measures to reduce adverse impacts and list any additional or special information needed by the LTO concerning the construction, maintenance, and/or abandonment of roads or landings, as required by 14 CCR Article 12. Include required explanation and justification in THP Section III.

New Road Construction: New road construction will occur in conjunction with project "P1" described below.

New road construction will occur at the top of unit 338 to create a spur road (temporary road) for yarder operations. This road will be designed to bring cable-yarding operations closer to the break in slope thus providing better deflection and a lower potential for ground disturbance by decreasing the frequency of logs impacting the hill slope.

Obliteration of roads: In the interest of providing more available acres for forest production. Site preparation activities may require the obliteration of some roads, or road segments, located within certain units where the Clear Cut silviculture has been proposed. When this determination has been made notification shall be submitted to CAL-FIRE in the form of a Minor Deviation.

Temporary Roads: There are 16 segments of road that are listed as temporary. Of these 16 roads 7 of them exist, 8 will require construction in some form and one of the roads contains portions that are new and existing. Within the map series titled "Appurtenant Roads & Watercourses" the temporary roads are labeled as "Existing Temporary Roads" or "New Temporary Roads". Existing Temporary Roads are the roads that were used as a temporary road during the previous harvest entry and were closed accordingly. New Temporary Roads are the roads that were used as a temporary road possibly two harvest entries ago and then were likely used as a skid trail during the previous entry; and closed as a skid trail. One of the New Temporary Roads, at the top of Unit 338 does not utilize skid trails and is entirely new. All of the skid trail portions that will be utilized in the creation of the New Temporary Roads are in stable condition and exhibit a favorable grade for log hauling. Most of these segments will require minor maintenance to be used. However some of these segments will require minor road prism adjustments to create a better hauling and/or drainage surface. Some of these temporary roads are proposed for use to move landing operations within their associated Clearcut units, thus allowing the landowner to better manage slash and to help maintain the existing road system. The temporary road that accesses Unit #94, from unit 365, includes a class III watercourse crossing that shall be dipped out upon completion.

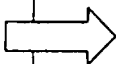
Item 24 (f): Temporary roads shall be closed to the standard as per 14 CCR 963 (g)

Landing Reconstruction: The landing described within project "P1" will be reconstructed. It is also likely that some of the landings within the THP will also require minor reconstruction to accommodate log-processing equipment.

Item 24 (k): The landing described within project "P1" will be abandoned.

The following project list consists of mitigation work to improve and/or repair existing road drainage facilities and structures, to mitigate current road issues as part of a continuing road network maintenance effort, and to facilitate better access to harvest units. Projects described below shall be flagged/identified on the ground prior to the start of operations and correspond to project sites demonstrated within the THP Maps.

Project List and Descriptions	
P1	<p><u>Description:</u> At this location the road end and landing enters a class III ELZ. Directly adjacent to and up slope of the landing is a wet area that feeds water into the class III. The class III then drains across the landing via water diversion structure. The class III then continues down the slope to a class II. A jump up landing exists adjacent to the landing but entirely out of the ELZ.</p> <p><u>Improvement:</u> The jump up landing will be utilized as the main landing. The current landing that exists within the ELZ shall be abandoned as a landing. The haul road will be constructed to accommodate the turn radius needed for loaded log trucks. It is likely that the new road turn will still enter the existing landing and still border the ELZ. No landing operations shall occur within the Class III ELZ – Landing operations include log skidding, processing, decking, loading and the development slash pile.</p> <p>The new road construction that will access the jump up landing will be approximately 50 feet to accommodate the turn radius needed for loaded log trucks. The entire segment of new road including sidecast shall be straw mulched and seeded or slash packed by "walking in" slash.</p> <p>The entire length of road, temporary and seasonal, from project P1 to unstable area U1 in unit # 343 shall be drained to the high EHR spacing.</p>
P2	<p><u>Description:</u> This is a temp Class II crossing located within unit 162 along an existing haul road. This crossing has been used during previous entries and removed post operations.</p>

	<p>Improvement: A temporary 24-inch diameter culvert shall be installed. A 24-inch diameter culvert is adequate to span the width of the channel during normal summer flow conditions. The road approaches, not including the channel, for a minimum of 25 feet either side of the centerline of the creek shall be rocked. The rock shall be installed prior to log haul. <u>At least 2-4 inch rock shall be used and it shall be rocked to a minimum depth of 4 inches.</u> This temporary crossing shall be installed, utilized and removed outside of the winter period. The road shall be blocked to vehicle traffic when the crossing is removed.</p> <p><u>This project will require a California Department of Fish and Game 1603 application.</u></p>
P3	<p>Description: At this location there is a dip in the road prism. Immediately west of the road surface is a wet area and eventually a Class III watercourse. The haul road passes through an area upslope of a Class III watercourse headwall. Slopes at this location are mild and there is no evidence of aggregation occurring. However, due to its proximity the road is having difficulty maintaining its shape and its water draining capacity. <u>Please note that the current facilities at this location are functioning.</u></p>
	<p>Improvement: Install Rocked Rolling Dip across the entire width of the road. Rock shall be installed through the entire length and width of the dip. At least 2-4 inch rock shall be used for dip installation and <u>it shall be rocked to a minimum depth of 4 inches.</u></p>
P4	<p>Description: At this location the road drainage structures are functioning.</p>
	<p>Improvement: At this location road maintenance work shall re-establish the outside berm on the seasonal road crossing of watercourse 3I in unit #364. The berm shall carry surface run-off away from the crossing to a new leadout approximately 100 feet down from the crossing. The existing dip above the 3I crossing shall be maintained</p>
P5	<p>Description: At this location the haul road crosses a class II watercourse. The watercourse is contained within a functioning rocked dip.</p>
	<p>Improvement: The crossing shall be rocked with 3 to 6 inch rock, the width of the road to a minimum depth of 6 inches. Rocking shall extend 15 feet either side of channel centerline. This project shall be completed regardless of whether the crossing is wet or dry at the time of use. The project shall be completed prior to the start of the winter period the year of use if dry or before use if wet.</p>
P6	<p>Description: All of the existing WLPZ road drainage facility lead outs on the haul road adjacent to Cherry Creek presently have 3 to 6 inch angular rock utilized as energy dissipaters to catch sediment.</p>
	<p>Improvement: All drainage facility lead-outs shall be re-rocked with similar size material prior to the start of the winter period the year of timber operations. The rocked area shall be the width of the lead-out and at least ten feet down or to the break in slope which ever is less.</p>

- Where appropriate and where needed, a "critical dip" shall be installed in the road downhill from THP crossings to prevent the flow of water down the road should the drainage structure become plugged.

WATERCOURSE AND LAKE PROTECTION ZONE (WLPZ) AND DOMESTIC WATER SUPPLY PROTECTION MEASURES

26. a. ☒ Yes ☐ No Are there any watercourse or lakes which contain Class I through IV waters on or adjacent to the plan area? If yes, list the class, WLPZ or ELZ width, and protective measures determined from Table I and/or 14 CCR 916 (936, 956) .4 (c) of the WLPZ rules for each watercourse. Specify if Class III or IV watercourses have WLPZ, ELZ or both.
- b. ☒ Yes ☐ No Are there any watercourse crossings that require mapping per 14 CCR 1034 (x) (7)?
- c. ☐ Yes ☒ No Will tractor road watercourse crossings involve the use of a culvert? If yes state minimum diameter and length for each culvert (may be shown on map).
- d. ☒ Yes ☐ No Is this THP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1603 Addendum below or at the end of this Section II; provide the background information and analysis in Section III; list instructions for LTO below for the installation, protection measures, and mitigation measures; as per THP Form Instructions or CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

WATERCOURSE TABLE				
STREAM	CLASS	SIDE SLOPE CATEGORIES	MINIMUM ZONE WIDTH (IN FEET)	PROTECTION MEASURES
1A Blue Creek	I	0-30%	75' WLPZ	BDG
		30-50%	100' WLPZ	BDG
		>50%	150' WLPZ*	ADG

1B Cherry Creek	I	0-30% 30-50% >50%	75' WLPZ 100' WLPZ 150' WLPZ*	BDG BDG ADG
2A Unit 336	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2B Unit 336 & 365	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2C Unit 340	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2D Units 343, 342, 341 & 94	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2E Unit 351	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2F Unit 351	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2G Unit 162 & 352	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2H Unit 162	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2I Unit 162	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
2J Unit 350	II	0-30% 30-50% >50%	50' WLPZ 75' WLPZ 100' WLPZ	BEI BEI BEI
3A Unit 334 & 335	III	0-30% >30%	25' ELZ 50' ELZ	α
3B Unit 94	III	0-30% >30%	25' ELZ 50' ELZ	α
3C Unit 345	III	0-30% >30%	25' ELZ 50' ELZ	α
3D Unit 345	III	0-30% >30%	25' ELZ 50' ELZ	α
3E Unit 338	III	0-30% >30%	25' ELZ 50' ELZ	α
3F Unit 338	III	0-30% >30%	25' ELZ 50' ELZ	α
3G Unit 338	III	0-30% >30%	25' ELZ 50' ELZ	α
3H Unit 343	III	0-30% >30%	25' ELZ 50' ELZ	α
3I Unit 364	III	0-30% >30%	25' ELZ 50' ELZ	α
3J Unit 351	III	0-30% >30%	25' ELZ 50' ELZ	α
3K Unit 352	III	0-30% >30%	25' ELZ 50' ELZ	α
3L Unit 352	III	0-30% >30%	25' ELZ 50' ELZ	α
3M Unit 162	III	0-30% >30%	25' ELZ 50' ELZ	α
3N	III	0-30%	25' ELZ	α

PART OF PLAN

Unit 349		>30%	50' ELZ	
3O	III	0-30%	25' ELZ	
Unit 350		>30%	50' ELZ	α
3P	III	0-30%	25' ELZ	
Unit 350		>30%	50' ELZ	α
3Q	III	0-30%	25' ELZ	
Unit 347		>30%	50' ELZ	α
3R	III	0-30%	25' ELZ	
Unit 347		>30%	50' ELZ	α

The letter designations shown in the "Protective Measures" column in the table on the preceding page correspond to the following:

"A" WLPZ shall be clearly identified on the ground by the RPF who prepared the plan, or his designee, with paint, flagging, or other suitable means prior to the preharvest inspection.

"B" The WLPZ has been clearly identified on the ground by the RPF with Blue and white WLPZ flagging prior to operations.

"D" To ensure retention of shade canopy filter strip properties of the WLPZ and the maintenance of a multi-storied stand for protection of values described in 14 CCR 916.4(b), a base mark below the cut line of residual or harvest trees within the zone shall be done in advance of preharvest inspection by the RPF who prepared the plan, or his designee. Sample marking is satisfactory in those cases where the director determines it is adequate for plan evaluation. When sample marking has been used, all marking shall be done in advance of falling operations within the WLPZ.

"E" A base mark shall be made on all harvest trees within the WLPZ's of all class II watercourses in advance of timber falling.

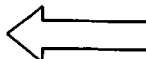
"G" To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the understory canopy covering the ground and adjacent waters shall be left in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.

"I" At least 50% of the total canopy covering the ground shall be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.

★ Subtract 50 feet width for cable yarding operations.

α Class III watercourses shall have a minimum 25-foot "ELZ" when the slopes are less than 30%. When the slopes are greater than 30%, the ELZ shall be 50 foot. Within this zone, all heavy equipment shall be excluded from operating except at Class III skid crossings that are dry at the time of operations.

Note: Springs and wet areas shall be given protection per 956.3 (c) and (d).



27. Are site specific practices proposed in-lieu of the following standard WLPZ practices?

- a. ☒ Yes ☐ No Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows:
- (1) At prepared tractor road crossings.
 - (2) Crossings of Class III watercourses which are dry at time of timber operations.
 - (3) At existing road crossings.
 - (4) At new tractor and road crossings approved by Department of Fish and Game.
- b. ☐ Yes ☒ No Retention of non-commercial vegetation bordering and covering meadows and wet areas?
- c. ☐ Yes ☒ No Directional felling of trees within the WLPZ away from the watercourse or lake?
- d. ☐ Yes ☒ No Decrease of width(s) of the WLPZ(s)?
- e. ☐ Yes ☒ No Protection of watercourses which conduct class IV waters?
- f. ☒ Yes ☐ No Exclusion of heavy equipment from the WLPZ except as follows:
- (1) At prepared tractor road crossings.
 - (2) Crossings of Class III watercourses which are dry at time of timber operations.
 - (3) At existing road crossings.
 - (4) At new tractor and road crossings approved by Department of Fish and Game.
- g. ☐ Yes ☒ No Establishment of ELZ for Class III watercourses unless sideslopes are <30% and EHR is low?
- h. ☐ Yes ☒ No Retention of at least 50% of the overstory canopy in the WLPZ?
- i. ☐ Yes ☒ No Retention of at least 50% of the understory in the WLPZ?
- j. ☐ Yes ☒ No Are any additional in-lieu or any alternative practices proposed for watercourse or lake protection?

NOTE: A yes answer to any of items "a." through "j." constitutes an in-lieu practice. If any item is answered yes, refer to 14 CCR 916 (936, 956).1 and address the following for each item checked yes:

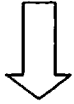
1. The RPF shall state the standard rule;
2. Explain and describe each proposed practice;
3. Explain how the proposed practice differs from the standard practice;
4. The specific location where it shall be applied, see map requirements of 14 CCR 1034 (x) (15) and (16);

5. Provide in THP Section III an explanation and justification as to how the protection provided is equal to the standard rule and provides for the protection of the beneficial uses of water, as per 14 CCR 916 (936, 956) .1 (a). Reference the in-lieu and location to the specific watercourse to which it will be applied.

Item 27 [a & f]

1. Standard Rule: 956.3 – General Limitations near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas.

956.3(c) The timber operator shall not construct or reconstruct roads, construct or use tractor roads or landings in Class I, II, III or IV watercourses, in the WLPZ, marshes, wet meadows and other wet areas unless explained and justified in the THP and approved by the director except as follows:



- (1) At prepared tractor road crossings.
- (2) Crossings of Class III watercourses which are dry at time of timber operations.
- (3) At existing road crossings
- (4) At new tractor and road crossings approved by Department of Fish and Game.

2. Proposed Practice: ~~Two in-lieu practices are proposed at two locations. In-lieu location #1 – This in-lieu proposes to use two existing WLPZ landings and their associated tractor road (skid trail) approaches in association with unit 336. In-lieu location #2 – This in-lieu proposes to use the WLPZ road within unit 162 for skidding purposes.~~

3. How the proposed practice differs from the standard practice: The use of heavy equipment and the use of landings is prohibited in the WLPZ of ~~Class I & Class II~~ watercourses, as described in 14 CCR 956.3 (c).

4. Location Where It Shall Be Applied: ~~In-lieu location #1 – The proposed WLPZ landings are located where unit 336 borders the haul road at the bottom of the slope. The landings will be located within the WLPZ of Cherry Creek (class II watercourse). In-lieu location #2 is located within the WLPZ haul road of unit 162, at the bottom of the slope.~~

5. Explanation and Justification of in-lieu: See Section III for an explanation and justification of these in-lieu practices.

The following protection measures shall apply for the above listed In-lieu proposed practices:

In-lieu location# 1

- Upon completion of use, and outside of the winter period, the in lieu portion of the landings and skid trails shall have fine logging slash scattered on the surface or shall be seeded and mulched as per item #18 in the THP. The LTO shall be responsible for seeding and mulching.
- The existing landing shall not be increased towards the WLPZ/watercourse and material shall not be side cast from the landings.
- Use of this landing and Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.
- Skid trails to be utilized within the WLPZ, not including the haul roads, shall be flagged prior to the commencement of operations. Skidding within this zone shall be limited to the existing skid trails as flagged by the RPF.
- All tractor road use within the WLPZ shall occur during dry rainless periods where saturated soils do not exist and outside of the winter period designated as: "Winter period" means the period between November 15 and April 1.
- End lining of logs from the WLPZ to the haul road will be allowed. Where end lining occurs in the WLPZ; trenches created from skidding shall be slashed, mulched with native material, or hand waterbars shall be installed at 50-foot intervals. Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.

➡ ~~If a landing slash pile is generated from timber operations at landing WL 2, the pile shall have a berm established around it to prevent any ash from potentially migrating into the stream course.~~

- ~~The inside ditch presently in place at landing WL 2 shall be maintained after operations.~~
- ~~To reduce the size of the potential landing pile, as much slash as possible shall be pushed back up the skid trail system.~~
- ~~Only trees harvested from between the WLPZ road and Cherry Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the WLPZ.~~

➡ **In-lieu location# 2**

- Only trees harvested from between the WLPZ road and Blue Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the WLPZ.
- End lining of logs from the WLPZ to the haul road will be allowed. Where end lining occurs in the WLPZ; trenches created from skidding shall be slashed, mulched with native material, or hand waterbars shall be installed at 50-foot intervals. Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.
- All tractor road use within the WLPZ shall occur during dry rainless periods where saturated soils do not exist and

PART OF PLAN

* outside of the winter period designated as: "Winter period" means the period between November 15 and April 1.

28. a. ☒ Yes ☐ No Are there any landowners within 1000 feet downstream of the THP boundary whose ownership adjoins or includes a class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations? If yes, the requirements of 14 CCR 1032.10 apply. Proof of notice by letter and newspaper should be included in THP Section V. If No, "28 b." need not be answered.
- b. ☐ Yes ☒ No Is an exemption requested of the notification requirements of 14 CCR 1032.10? If yes, an explanation and justification for the exemption must appear in THP Section III. Specify if requesting an exemption from the letter, the newspaper notice or both.
- c. ☐ Yes ☒ No Was any information received on domestic water supplies that required additional mitigation beyond that required by standard Watercourse and Lake Protection rules? If yes, list site specific measures to be implemented by the LTO.
29. ☐ Yes ☒ No Is any part of the THP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If yes, identify the watershed and list any special rules, operating procedures or mitigation that will be used to protect the resources identified at risk?

HAZARD REDUCTION

30. a. ☒ Yes ☐ No Are there roads or improvements which require slash treatment adjacent to them? If yes, specify the type of improvement, treatment distance, and treatment method.
- b. ☐ Yes ☒ No Are any alternatives to the rules for slash treatment along roads and within 200 feet of structures requested? If yes, RPF must explain and justify how alternative provides equal fire protection. Include a description of the alternative and where it will be utilized below.
31. ☒ Yes ☐ No Will piling and burning be used for hazard reduction? See 14 CCR 917.1-.11, 937.1-.10, or 957.1-.10, for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

957.2 - "... within 50 feet of the edge of the traveled surface of the permanent and seasonal private roads open for public use where permission to pass is not required ..." constitutes the required treatment. The area and distance shall include 50 feet from the edge of Winton Road, Spur 4 SPL, and non-gated spur roads to Spur 4 where these roads are open for public use AND engage the THP area. Additionally 200 feet from permanently located structures (located within section 22) also constitutes the required treatment. Chipping and removal, slashing and broadcast burning, crushing and scattering, or piling and burning will treat the logging slash, hardwoods, and brush.

ALTERNATIVE PROGRAMMATIC ELEMENTS

957.2(d) & 957.9(c) Technical Rules Addendum #3(B) Performance-based rules shall apply

Best Management Practices (BMPs)

The purpose of these rules is to provide a level of fire and pest protection to property and resources that meets or exceeds the intent of protection provided under 14 CCR § 957 through 957.8 and to provide for the treatment of snags and logging slash in order to reduce fire and pest safety hazards in the logging area, to protect such area from potential insect and disease attack, and to prepare the area for natural or artificial reforestation while retaining wildlife habitat and protection of the beneficial uses of water.

1. Hazard Reduction

Goals:

- Reduce wildfire hazard in the area
- Increased suppression efficiency

Objectives:

- Provide for the retention of some large woody debris within areas of operations
- Provide for low surface fuel loadings adjacent to permanent and seasonal roads, which are available for unrestricted public use
- Provide protection for other resource values within areas of harvest and fuel treatment operations

Range of Acceptable Results:

- Maintain 50% to 90% soil surface cover consisting of live vegetation or organic material
- Retain 2 – 3 logs per acre, where a log is at least 12 inches in diameter on one end and at least 12 feet long; averaged over 40 acres.
- Slash to be treated by mechanical or hand methods shall be completed prior to fire season
- Burn piles shall each be greater than 80% consumed. Burn Piles that are not greater than 80% consumed by April 1 the following year of operation shall then be re-burned to achieve greater than 80% consumption before the end of that calendar year.
- Achieve a low intensity flame length such that the point count stocking standard is not significantly impaired.
- Hazard Reduction operations shall create ground fuel conditions that result in a low intensity flame length. Flame length and intensity shall allow for the retention of 90% to 100% of the residual trees that will be used to meet silvicultural and stocking requirements of the rules.

2. Slash Treatment

Goals:

- Achieve reforestation
- Maintain forest health
- Reduce wildfire hazard
- Maintain wildlife habitat structures
- Maintain zones of advanced stand structure

Objectives:

- Provide for access to sufficient mineral soil for planting and natural regeneration
- Provide for the retention of some large woody debris within areas of harvest operations
- Provide protection for other resource values within areas of harvest operations
- Provide for the retention of large and small snags across the landscape
- Provide beneficial survival conditions towards stocking designated for retention
- Provide for the retention of advanced stand structure islands within areas of harvest operations

Range of Acceptable Results:

- Achieve 300 – point count for areas that require artificial or natural regeneration.
- No accelerated erosion or deleterious quantities of debris delivery to waters of the state
- Retain 2 – 3 logs per acre, where a log is at least 16 inches in diameter on one end and at least 12 feet long; averaged over 40 acres.
- Retain 1.5 to 2 snags per acre, averaged over 40 acres, unless worker safety precludes
- Slash to be treated by mechanical or hand methods shall be completed prior to fire season
- Burn piles shall each be greater than 70% consumed. Burn Piles that are not greater than 70% consumed by April 1 the following year of operation shall then be re-burned to achieve greater than 70% consumption before the end of that calendar year. Piles may also be chipped or lopped and scattered.
- Retain some snags within closed canopy and some above or free from closed canopy
- Retain 90% to 100% of the Wildlife Habitat Retention Areas within the areas of operations
- Retain 90% to 100% of the WLPZ elements designated for retention within the areas of operations
- Slash treatment operations shall create ground fuel conditions that result in a low intensity flame length. Flame length and intensity shall allow for the retention of 90% to 100% of the residual trees that will be used to meet silvicultural and stocking requirements of the rules.

Prohibited Activities:

- Tractor operations in areas delineated for cable operations unless agency approved.

NOTE: Please see Explanation and Justification of Range of Acceptable Results in Section III

BIOLOGICAL AND CULTURAL RESOURCES

32. a. ☒ Yes ☐ No Are any plant or animal species, including their habitat, which are listed as rare, threatened or endangered under federal or state law, or a sensitive species by the Board, associated with the THP area? If yes, identify the species and the provisions to be taken for the protection of the species.
- b. ☐ Yes ☒ No Are there any non-listed species which will be significantly impacted by the operation? If yes, identify the species and the provisions to be taken for the protection of the species.

NOTE: See THP Form Instructions or the CDF Mass Mailing, 07/02/1999, section on "CDF Guidelines for Species Surveys and Mitigations" to complete these questions.

Raptors:

Focused Surveys

Habitat for the California spotted owl and the northern goshawk does exist in the THP area. California spotted owl was not observed during the layout of this THP. However, one northern goshawk observation occurred during the layout of this THP. The sighting occurred within the month of September outside of any harvest units but adjacent to the plan area. SPI Biologist, Kevin Roberts, will evaluate this area to ascertain if the adjacent area(s) contain suitable habitat that warrant surveys.

SPI policy is to visit known nest sites located within harvest units or areas within ¼ mile of harvest units, during the year of harvest, to determine occupancy status. Other areas may also be targeted for focused survey due to indeterminate sightings or habitat assessment. There are no known or historical raptor nest sites within THP boundary. There are two historical California Spotted Owl (CSO) sightings within ¼ mile of the THP area. There is one historical California Spotted Owl (CSO) sighting within ½ mile of the THP area located within the adjacent planning watershed.

These recorded California Spotted Owl nest sight and sightings are shown below and also shown on Watershed and Biological Assessment Area Map at the end of Section IV.

<i>California Spotted Owl Territories</i>				
Owl (Territory)	DFG ID	Legal Location	Year	Status at That Time
Blue Creek I	CA030	T7N, R15E, S ½ of the NW ¼ of Sec. 22	1992	Single
Blue Creek III	CA014	T7N, R16E, W ½ of the SW ¼ of Sec. 19	1990	Pair
Blue Creek N (Upper Blue Creek Planning Watershed)	CA033	T7N, R16E, SW ¼ of the SE ¼ of Sec. 20	1992	Reproductive pair

California spotted owl sightings CA030 and CA014 are located adjacent to clear-cut units. Both of these areas contain potentially suitable spotted owl nesting habitat. Therefore, the sites listed above and the potential habitat surrounding these sites shall be surveyed specifically for California Spotted Owls, prior to operations, in the year of proposed harvest. If an owl nest is found within ¼ mile of harvest operations, protection measures shall be instituted as described below. California spotted owl sighting CA033 is located on USFS property approximately ½ mile East from clear cut unit 346; this site will not be included among the focused surveys for the operations of this THP.

There are three known northern goshawk NDDB sightings within one mile of the THP boundaries. These sightings are listed within the following table:

<i>Goshawk Sightings</i>				
Territory	DFG ID	Legal Location	Year	Status at That Time
Middle Blue	106715	T7N, R16E, SE ¼ of the NW ¼ of Sec. 30	1991	Nesting with 2 fledglings
			2002	Territory inactive
Middle Blue 2000	106716	T7N, R16E, NE ¼ of the NW ¼ of Sec. 30	2000	Nesting with 1 fledgling
			2002	Territory inactive
Upper Blue Creek	GO328	T7N, R16E, SW ¼ of the NE ¼ of Sec. 29	?	?

Northern Goshawk sightings 106715 and 106716 are located adjacent to clear-cut units. Both of these areas contain potentially suitable Northern Goshawk nesting habitat. Therefore, the sites listed above and the potential habitat surrounding these sites shall be surveyed specifically for Northern Goshawk, prior to operations, in the year of proposed harvest. If a Northern Goshawk nest is found within ¼ mile of harvest operations, protection measures shall be instituted as described below.

Walk-Through Survey for All Raptors Prior to Operations in a Harvest Unit During Nesting Period:

In order to reduce the chance that harvest activities will adversely affect raptors during the nesting period (March through August), field personnel shall perform a walk-through survey of individual evenaged regeneration harvest units shortly before harvest of a unit. This walk-through survey shall include vocal calls for spotted owls,

examination of nests for raptor activity, visual searches for whitewash, listening for calls, and any other evidence of nesting raptors in the harvest unit. If field personnel detect raptor presence, they shall take appropriate protection measures discussed below for that particular species. Walk-through surveys are optional when timber harvesting occurs in these harvest units during the non-nesting period.

General Surveys for All Raptors:

To make a reasonable effort to detect raptor presence, field personnel will be alert for any raptor activity during general field work and sale reconnaissance (e.g. property line flagging, sample marking, WLPZ flagging, archaeological surveys, road layout, unit boundary layout and locating retention areas within the unit boundaries). As much work as practicable will be scheduled during the season when young are present, generally mid-May through August, as the probability of discovery is highest during this time. General surveys will include suitable habitat and visually search for nests, whitewash, pellets, feathers and other appropriate raptor sign. Vocal calls will be used to detect the presence of spotted owls.

Procedures upon Discovery of Raptors or Raptor Nests:

Upon the discovery of an occupied nest of any raptor or any unknown large bird, personnel involved with the harvest operation shall suspend vegetation-disturbing activities within ¼ mile of the nest. Activities may resume after the species using the nest is identified, the appropriate measures below and any specified in the California Forest Practice Rules to protect the nest are determined, and implemented on the ground.

Listed Raptors:

In accordance with Forest Practices Rules, if an occupied nest of a listed bird (ESA, CESA, or Board of Forestry "Sensitive Species") is discovered during timber operations, the timber operator shall protect the nest tree, screening trees, perch trees, and replacement trees. Vegetation disturbing activities will be suspended within ¼ mile of the nest, and the Department of Fish and Game and Department of Forestry and Fire Protection will be immediately notified. In addition, a 375-foot radius buffer will be established within which all timber operations (per PRC Section 4527) will be stopped until a consultation with DFG or the end of the critical period. If necessary, a minor amendment to the timber harvest plan shall be filed that reflects the additional protection agreed to between the operator and the Director of the Department of Forestry and Fire Protection after any consultation with the appropriate wildlife agency.

Non-listed Raptors:

If an occupied nest of a non-listed raptor is discovered during timber operations, the timber operator will immediately protect the nest tree, screening trees, perch trees and replacement trees. Vegetation disturbing activities within ¼ mile of the occupied nest will be suspended until an SPI biologist or forester under a biologist's supervision has determined the appropriate protection measures and has designated nest tree, perch tree(s), screening tree(s), and replacement tree(s), which shall be left standing and unharmed. Since SPI can designate and not cut any trees it so chooses, no amendment to the THP is necessary. If the RPF decides to file an amendment it shall be considered a minor amendment to the timber harvest plan and shall reflect the protection measures implemented.

Botanical:

A scoping process was conducted to determine which plants could possibly be adversely affected by the operations proposed in this THP. This process is described in detail in the Biological section of the Cumulative Impacts Assessment (Section IV). A botany scoping report is attached in section V.

Sensitive Species: There is a known occurrence of *Lomatium stebbinsii* adjacent to the plan area. No other special status flora was identified within the plan area. Suitable habitat for *Lomatium stebbinsii*, *Allium tribracteatum*, *Calochortus clavatus* var *avius*, *Mimulus pulchellus*, and *Piperia colemanii* exist within or directly adjacent to the THP boundary. Surveys for these plant species shall be conducted during the appropriate floristic window prior to the commencement of operations. Botanical survey results shall be submitted to CAL FIRE regardless of target species presence or absence.

Watch Species: There is additional suitable habitat for *Ceanothus fresnensis*, *Clarkia virgata*, *Cypripedium fasciculatum*, *Cypripedium montanum*, *Lilium humboldtii* ssp *humboldtii*, *Mimulus laciniatus*, *Jensia yosemitana*, and *Sphenopholis obtusata* within or directly adjacent to the THP boundary. cursory surveys for these species shall be conducted in conjunction with the focused surveys and occurrences will be inventoried as part of other botanical survey activities.

The appropriate floristic window for most of the above stated species did not occur during THP field preparation activities. Surveys for sensitive plant species shall be conducted during the appropriate floristic window prior to the commencement of operations. If a sensitive plant is found the following protection measures shall apply:

1. The perimeter of the occurrence shall be flagged for avoidance "no-operations" including an EEZ by ground-

- based equipment.
2. Consultation will then be initiated with DFG and appropriate mitigation measures will be incorporated into the plan via a THP amendment.
3. The LTO shall be made aware of the location and any trees to be harvested within 100 feet of the protected area shall be to the greatest extent possible directionally felled away.

Plants Not Identified During the Scoping Process

The following applies to plants not identified during the scoping process yet may be observed prior to or during operations associated with this plan.

Listed Plant Species

If a state and or federally listed plant is observed on the THP, the forester will flag a "no-operations" zone around the identified plant(s) and a 50 ft. buffer, with orange and white striped "Special Treatment Zone" flagging. Consultation will then be initiated with DFG and appropriate mitigation measures will be incorporated into the plan via a THP amendment.

Non-Listed Plant Species Subject to CEQA Regulations

The following plant protection measure for a non-listed plant species is designed to avoid significant negative impact to plant species.

The RPF will clearly flag an Equipment Exclusion Zone (EEZ) around the perimeter of plants. Any trees cut inside the EEZ will be directionally felled away from the plants either before plant emergence or following plant seed set or senescence for the year. Logs will be yarded away from the plants. Trees harvested outside the EEZ will be directionally felled and yarded away from the EEZ boundary. This plant protection measure will avoid any substantial reduction in numbers of plants or adverse affects on habitat for this non-listed species.

Even though it is possible individual plants of the non-listed plant species may be impacted by equipment or a falling tree, the EEZ will be flagged to adequately protect occurrences from substantial reduction in numbers of plants. If there are low numbers of individual plants within an occurrence or some other activity allowed by this THP which may adversely affect substantial numbers of individual plants within the occurrence the forester may use discretion in flagging EEZ boundaries to extend beyond the perimeter of the plants. The EEZ flagging is intended to be an enforceable provision of the THP. An informational letter will be forwarded to CDF for the THP record if any plants are observed. SPI is giving protection to individual non-listed plants; thereby treating them with nearly the same protection as provided listed species, clearly minimizing impacts to insignificance for non-listed species.

33. ☒ Yes ☐ No Are there any snags which must be felled for fire protection or safety reasons? If yes, describe which snags are going to be felled and why.

Snags that present a clear and obvious danger shall be felled. If required by the Director during the review of the THP, snags over 20 feet in height and 16 inches dbh shall be felled for hazard reduction within 100 feet of all public roads, permanent roads, seasonal roads and landings. Snags within 100 feet of all Clearcut boundaries maybe felled for burning considerations. Any live or dead trees marked with a "W" shall be left uncut and protected for use by wildlife. However, any snag deemed to be unsafe to fall by a professional faller shall be left.

34. ☐ Yes ☒ No Are any Late Succession Forest Stands proposed for harvest? If yes, describe the measures to be implemented by the LTO that avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late succession forests.

35. ☐ Yes ☒ No Are any other provisions for wildlife protection required by the rules? If yes, describe.

Oaks of any size, but preferably larger oaks greater than 25" dbh, are a major component of the stand structure and efforts shall be made to protect these oaks. The following attributes of stand structure and species diversity either singularly or in combination lend themselves to candidacy for retention:

- Oak trees-for nesting cavity and mast production attributes
- Snags- for nesting cavity, perch tree and food source (insects, grubs) attributes
- Large down logs-mammal denning attributes
- Rock outcroppings- mammal and reptile denning attributes
- Dense pockets/thickets of poles to small sawtimber size trees-for thermal and hiding cover
- Live, healthy, vigorous tree specimen-live snag recruitment, food source and natural regeneration seed source.

The objective is to maintain retention areas that include oak trees as undisturbed islands into the future within the context of the evenaged regeneration units. In addition to the oaks in retention areas, if present a minimum of two to three oaks (preferably greater than 25" dbh) shall be left in each evenage regeneration unit. Oaks outside of the evenage regeneration units shall be protected and not felled, with exception to those that are a hazard or threaten the safety of those operating on the plan.

36. a. ☒ Yes ☐ No Has an archaeological survey been made of the THP area?
 b. ☒ Yes ☐ No Has a current archaeological records check been conducted for the THP area?
 c. ☒ Yes ☐ No Are there any archaeological or historical sites located in the THP area? Specific site locations and protection measures are contained in the Confidential Archaeological Addendum in Section VI of the THP, which is not available for general public review.

37. ☐ Yes ☒ No Has any inventory or growth and yield information designated "trade secret" been submitted in a separate confidential envelope in Section VI of this THP?

38. Describe any special instructions or constraints that are not listed elsewhere in Section II.

The following is for the benefit of the LTO and THP administrators and supervisors:

<i>THP Flagging Color Code:</i>	
<i>Use</i>	<i>Color/Type</i>
General THP Boundary – Non Clear Cut Silviculture	Solid WHITE flagging
Clearcut Boundary	Solid PINK flagging with painted yellow X's
Class I & II WLPZ	Solid BLUE flagging
Class III Watercourse ELZ	BLUE / WHITE stripe flagging
Spring or Wet Area	Solid BLUE flagging
Wildlife Retention Area	Solid ORANGE with solid WHITE flagging
Arch Feature	ORANGE/WHITE stripe "Special Treatment Zone" flagging
THP Project Point	Solid WHITE flagging with writing and ORANGE paint
New Road Construction or Road Reconstruction	Solid ORANGE flagging

❖ Advanced Regeneration and Leave Trees within Clearcut Units.

Within some of the Clearcut units, there is some advanced pine, fir, and cedar regeneration, including small group plantations, which are phenotypically desirable for retention. This regeneration exists as individual trees and/or as groups of trees. The LTO logging the Clearcut shall be instructed by the RPF to protect as much advanced regeneration as operationally feasible. This regeneration shall be evaluated by the RPF in charge of reforestation. If he deems that the regeneration is desirable for retention, then it shall be left, protected from site preparation operations, and utilized as advanced regeneration for State stocking purposes.

Additional merchantable trees within Clearcut units may also be left standing after Timber Operations are complete. The RPF, or the supervised designee, shall designate these trees.

❖ Wildlife Retention Areas

All Clearcut units shall be evaluated for the inclusion of Wildlife Retention Areas. These Wildlife Retention Areas, when included, shall be perimeter flagged with ORANGE & WHITE flagging prior to operations. The Wildlife

Retention Areas may range from one-tenth acre to one acre in size. Every attempt will be made to have at least one (and preferably two) such Wildlife Retention Areas in each Clearcut unit. The Wildlife Retention Areas are to remain as undisturbed, non-operational islands. Larger diameter conifer trees within the Wildlife Retention Areas may be removed during harvest. During timber operations, to the greatest extent possible, trees surrounding the Wildlife Retention Areas shall be directionally felled away and during site preparation activities inadvertent burning or partial burning of Wildlife Retention Areas shall be avoided. In some units, large rock outcroppings exist, and some of the Wildlife Retention Areas may be placed within these rock outcropping areas.

❖ Road Segments within WLPZs

There are multiple segments of existing roads that are located within the WLPZ's of a watercourse; as shown on the THP Roads & Projects Maps.

The following mitigation measures shall be followed for WLPZ road segments:

- No skidding, skid trail construction, landing use or construction shall be done in these segments.
 - Landing WL1, a WLPZ landing, and its associated tractor road approaches (including minor skidding along the haul road) shall be allowed. The road accessing landing WL1 is considered a WLPZ haul road.
- Existing road drainage structures shall be maintained.
- Dips or drivable waterbar locations shall be designated by the RPF.

❖ Other operational issues

Groups of retention trees shall be designated for leaving by flagging the perimeter of the groups with Solid ORANGE with solid WHITE flagging. Trees shall not be felled into these groups. Skid trails within the boundaries of these groups shall not be used unless designated, prior to use, by the RPF or his supervised designee.

All waterbar and other drainage facilities on existing roads shall be reinstalled in their current/original locations. Additional waterbars or drainage facilities shall be installed as necessary to provide for adequate drainage.

Existing skid trails, haul roads, and landings shall be used whenever feasible, if such use is consistent with the plan and Forest Practice rules.

All trees shall be felled "to lead" when feasible, in order to minimize the need to turn logs prior to skidding. Skids trails and cable corridors within the THP shall be held to the minimum number required to harvest logs.

NO landing shall be excavated at the terminus of the new road construction segment in unit #350

No downed logs or woody debris existing prior to start of operations within the WLPZ shall be removed.



❖ Waterholes and Drafting

1. The water truck operator shall have absorbent pads with the water truck at all times. The pads shall be used when any oil is dripping, or has potential to drip, from the water truck.
2. No soil or other material shall enter into the watercourse from foot traffic on the bank to access the waterhole for drafting activities.
3. No soils or sediment laden water shall be allowed to enter the waterhole or overflow into the channel from water drafting hoses, the truck intake, or any other water drafting activities.
4. If drafting from a pool within the watercourse channel, reduction in pool volume will not exceed 10%.
5. Pump intakes that take water from surface flow shall be fitted with mesh bags or screens designed to the following Department of Fish and Game specifications:
 - a. Round Openings: Round openings in the screening shall not exceed 2.38 millimeters (3/32 inch).
 - b. Square Openings: Square openings in screening shall not exceed 2.38 millimeters (3/32 inch measured diagonally).
 - c. Slotted Openings: Slotted openings shall not exceed 1.75 millimeters (0.0689 inch) in width.
6. Water truck operators shall inspect and clean the screen surface before each use.
7. The velocity of water across the screen surface shall not exceed 0.33 feet per second at any point on the screen surface. To achieve this standard, the screen shall be kept clean and free of accumulated algae, leaves or other debris that could block portions of the screen surface and increase approach velocities at any point on the screen. The screen shall be supported above the bed of the streams so that no part of the screen

surface is obstructed.

8. Off-channel waterhole provisions:

- a. Filling of the water hole shall be gravity fed.
- b. An off-channel waterhole shall not divert more than 20% of the flow from the watercourse, as measured immediately upstream of the diversion point at any time.
- c. The pipe inlet shall be screened to preclude the entrainment of aquatic amphibian life stages and all fish life stages. Temporary pipes used to feed the waterhole shall be removed prior to November 15 of each year.

Notification of the Commencement of Operations shall be directed to the following CDF Ranger Unit Headquarters:

Cal Fire Area Forester
785 Mountain Ranch Road
San Andreas, CA 95249
Phone: (209) 754 - 3831
E-mail: Thomas.Tinsley@fire.ca.gov

DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Timber Harvesting Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and the Forest Practice Act:

By:

Michael J. Bacca
(Signature)

APR 10 2009

(Date)

MICHAEL J. BACCA, RPF #2236

(Printed Name)

Forester II, Forest Practice
(Title) Manager

DATE RECEIVED

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No
	\$	\$		



STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
NOTIFICATION OF LAKE OR STREAMBED ALTERATION



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Sierra Pacific Industries			
Business/Agency	Business			
Street Address	PO Box 132			
City, State, Zip	Martell, CA 95654			
Telephone	(209) 223-7170	Fax	(209) 223-7175	
Email				

2. CONTACT PERSON *(Complete only if different from applicant)*

Name	Frank Mulhair			
Street Address	PO Box 132			
City, State, Zip	Martell, CA 95654			
Telephone	(209) 223-7170	Fax	(209) 223-7175	
Email	fmulhair@spi-ind.com			

3. PROPERTY OWNER *(Complete only if different from applicant)*

Name	Same as applicant			
Street Address				
City, State, Zip				
Telephone		Fax		
Email				

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Squiggly		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2008	2013	04/01	11/15	

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

PART OF FEE

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.

A.	<input type="checkbox"/> Standard (Most construction projects, excluding the categories listed below)
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction (Attachment A) Mine I.D. Number: _____
C.	<input checked="" type="checkbox"/> Timber Harvesting (Attachment B) THP Number: _____ unknown at this time
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment (Attachment C) SWRCB Number: _____
E.	<input type="checkbox"/> Routine Maintenance (Attachment D)
F.	<input type="checkbox"/> DFG Fisheries Restoration Grant Program (FRGP) FRGP Contract Number: _____
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. Note: The Department may not process this notification until the correct fee has been received.

A. Project		B. Project Cost	C. Project Fee
1	Install a temporary 24 inch diameter culvert on a Class II watercourse	\$985.00	\$100.00
2			
3			
4			
5			
		D. Base Fee (if applicable)	\$1,200.00
		E. TOTAL FEE ENCLOSED	\$1,300.00

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☒ Yes (Provide the information below) ☐ No

Applicant: Sierra Pacific Industries Notification Number: unknown Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☒ No ☐ Yes (Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.)

☐ Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

8. PROJECT LOCATION

A. Address or description of project location.

(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

Please see attached map

☒ Continued on additional page(s)

B. River, stream, or lake affected by the project. Unnamed tributary to Blue Creek

C. What water body is the river, stream, or lake tributary to? Blue Creek is tributary to Upper North Fork Mokelumne

D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?

☐ Yes

☒ No

☐ Unknown

E. County Calaveras

F. USGS 7.5 Minute Quad Map Name

Garnet Hill

G. Township

T7N

H. Range

R15E

I. Section

26

J. ¼ Section

SE1/4 of the NW1/4

☐ Continued on additional page(s)

K. Meridian (check one)

☐ Humboldt

☒ Mt. Diablo

☐ San Bernardino

L. Assessor's Parcel Number(s)

004-009-002-000

☐ Continued on additional page(s)

M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)

Latitude/Longitude

Latitude:

38.43371

Longitude:

120.29269

☐ Degrees/Minutes/Seconds

☒ Decimal Degrees

☐ Decimal Minutes

UTM

Easting:

Northing:

☐ Zone 10

☐ Zone 11

Datum used for Latitude/Longitude or UTM

☒ NAD 27

☐ NAD 83 or WGS 84

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

PART OF PLAN

9. PROJECT CATEGORY AND WORK TYPE (Check each box that applies)

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE		REPAIR/MAINTAIN	
		EXIST	ING STROT BE	EXIST	ING STROT BE
Bank stabilization -bio engineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization -rip -rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure - weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement -re vegetation/mitigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment removal -pond , stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : horizontal Directional Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

This is a temp Class II crossing located within unit 162 along an existing haul road. This crossing has been used during previous entries and removed post operations.

A temporary 24-inch diameter culvert shall be installed. The road approaches, not including the channel, for a minimum of 25 feet either side of the centerline of the creek shall be rocked. The rock shall be installed prior to log haul. This temporary crossing shall be installed, utilized and removed outside of the winter period. The road shall be blocked to vehicle traffic when the crossing is removed.

At least 2-4 inch rock shall be used and it shall be rocked to a minimum depth of 4 inches

☐ Continued on additional page(s)

B. Specify the equipment and machinery that will be used to complete the project.

Excavator or backhoe

☐ Continued on additional page(s)

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

☒ Yes ☐ No (Skip to box 11)

D. Will the proposed project require work in the wetted portion of the channel?

☒ Yes (Enclose a plan to divert water around work site)
☐ No

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

Minor amounts of vegetation may be necessary for access and installation of drainage structures.
Minor disturbance to the bank and bed during culvert installation may affect insect and other aquatic resources. Fish are not present within this watercourse.

☐ Continued on additional page(s)

B. Will the project affect any vegetation?

☒ Yes (Complete the tables below) ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Grasses	Linear feet: <u>30 feet</u> Total area: <u>30 feet</u>	Linear feet: <u> </u> Total area: <u> </u>
Herbaceous Plants	Linear feet: <u>30 feet</u> Total area: <u>30 feet</u>	Linear feet: <u> </u> Total area: <u> </u>

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)

☐ Continued on additional page(s)

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☐ Yes (List each species and/or describe the habitat below) ☒ No ☐ Unknown

☐ Continued on additional page(s)

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

NDDB, Company wildlife database, walk and look

☐ Continued on additional page(s)

E. Has a biological study been completed for the project site?

☐ Yes (Enclose the biological study) ☒ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (Enclose the hydrological study) ☒ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Actual in channel operations with equipment will be confined to bucket and blade work while the tracked equipment will be located beyond flowing water. Equipment will operate within the stream course to move across the channel, if necessary.

Banks will be sloped to match upstream and downstream conditions

Temporary pipe, logs and associated fill shall be utilized for the temporary watercourse crossing.

Exposed soils shall be stabilized by seeding, mulching, or rock armoring

☐ Continued on additional page(s)

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Installation shall take place outside of the winter period during a rainless period where saturated soils do not exist. The "winter period" indicates the period between November 15 and April 1.

☐ Continued on additional page(s)

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

If water is present at the time of culvert installation and or removal, the water will be impounded and diverted around the site. Temporary water diversion structures (sand bags, pipes) shall be used to divert water during operations if necessary.

☐ Continued on additional page(s)

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- A. _____ Timber Harvest Plan ☒ Applied ☐ Issued
- B. _____ ☐ Applied ☐ Issued
- C. _____ ☐ Applied ☐ Issued
- D. Unknown whether ☐ local, ☒ state, or ☐ federal permit is needed for the project. (Check each box that applies)

☐ Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

14. ENVIRONMENTAL REVIEW

A. ~~Has~~ a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

- ☒ Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each)
☐ No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)

- | | | |
|---|---|--|
| <input type="checkbox"/> Notice of Exemption | <input type="checkbox"/> Mitigated Negative Declaration | <input type="checkbox"/> NEPA document (type): _____ |
| <input type="checkbox"/> Initial Study | <input type="checkbox"/> Environmental Impact Report | <input type="checkbox"/> CESA document (type): _____ |
| <input type="checkbox"/> Negative Declaration | <input type="checkbox"/> Notice of Determination (Enclose) | <input type="checkbox"/> ESA document (type): _____ |
| <input checked="" type="checkbox"/> TR/ NTMP | <input type="checkbox"/> Mitigation, Monitoring, Reporting Plan | |

B. State Clearinghouse Number (if applicable)

A number has not been assigned at this time

C. ~~Has~~ a CEQA lead agency been determined?

- ☒ Yes (Complete boxes D, E, and F) ☐ No (Skip to box 14.G)

D. CEQA Lead Agency

CAL-FIRE

E. Contact Person

William Solinski

F. Telephone Number

(559) 222-3714

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

This project is contained within the Squiggly Timber Harvets Plan (THP).

☐ Continued on additional page(s)

~~Has~~ an environmental filing fee (Fish and Game Code section 711.4) been paid?

- ☐ Yes (Enclose proof of payment) ☒ No (Briefly explain below the reason a filing fee has not been paid)

The fee is required and paid once the THP has been approved

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☒ I request the Department to first contact (insert name) Frank Mulhair
 at (insert telephone number) (209) 223-7170 to schedule a date and time
 to enter the property where the project described in this notification will take place. I understand that this may
 delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or
 the Department's issuance of a draft agreement pursuant to this notification.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☒ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Signature of Applicant or Applicant's Authorized Representative

Date

Print Name

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

ATTACHMENT B

Additional Information for Projects Included in Timber Harvesting Plans

If the project described in the Notification of Lake or Streambed Alteration form (Form FG 2023) is part of a Timber Harvesting Plan (THP), the applicant must also submit the following information on one or more separate pages with the notification form.

I. PROJECT NAME AND THP NUMBER

II. PROJECT LOCATION

- A. *Encroachment Map.* A single map or diagram clearly delineating all of the following:
1. Lake and stream encroachments identified by number or other appropriate label
 2. Roads identified by a number or other appropriate label
 3. Watercourse classifications (i.e., Class I, II, or III)
 4. Access from a named public road
 5. North arrow and map scale

III. PROJECT DESCRIPTION

- A. *Multiple Encroachments.* If multiple lake or stream encroachments are proposed, include a table describes the following for each encroachment:
1. Encroachment type (e.g., permanent culvert, temporary bridge, rock revetment)
 2. Watercourse classification
 3. Structure (i.e., culvert, bridge, rock revetment) size
 4. Map reference number
- B. *Conditions at Encroachment(s).* Describe any torrent, debris, or landslide conditions at each encroachment.
- C. *Work Period(s).* If temporary crossings are proposed, specify dates and conditions requiring temporary crossing removal.
- D. *Culverts.* If a culvert crossing is proposed, provide calculations or other data used to size culverts.
- E. *Bridges.* If a bridge is proposed, include the following:
1. Indicate if the abutments or road approaches will encroach into the floodplain or stream channel
 2. Provide the calculations or data used to determine bridge height and flow capacity
 3. Describe the type of abutments and scour protections with dimensions
 4. Provide any engineering reports, plans, or other related documentation











NOTIFICATION OF LAKE OR STREAMBED ALTERATION
ATTACHMENT B

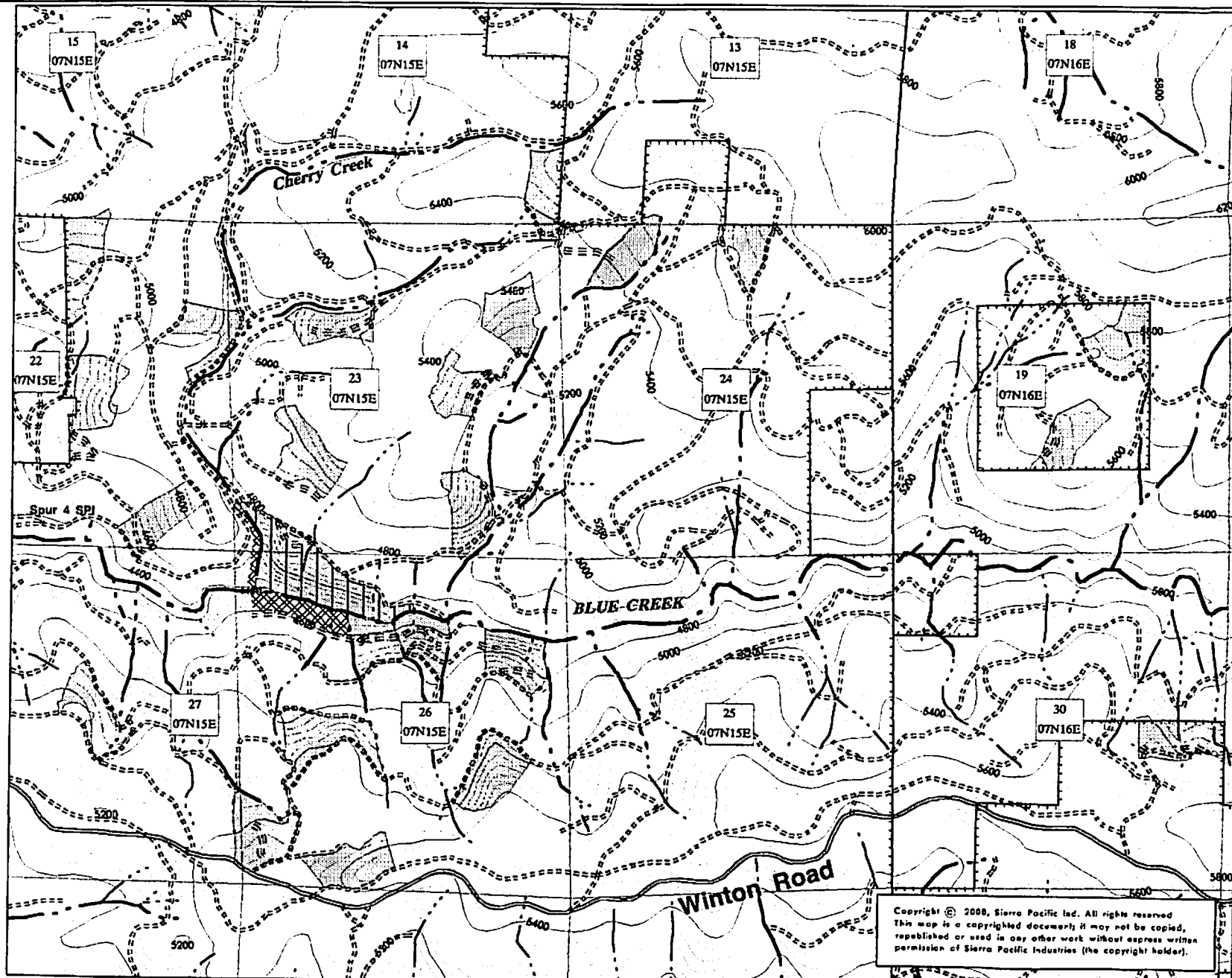
- F. *Water Diversion or Drafting.* If water will be present, and will be drafted or diverted around the work site, specify the following.
1. Volume, rate, and timing of water to be diverted or drafted
 2. Method of diversion or drafting
 3. Copy of applicable State Water Resources Control Board water right application, permit, or license

If any of the following conditions apply, contact the appropriate Department regional office to obtain a "Water Diversion Questionnaire" (Attachment C) and enclose a completed copy of the questionnaire with the notification:

1. Water will be used for purposes other than, or in addition to, road maintenance or dust control
2. Water drafting or diversion will continue after the THP expires
3. Water storage reservoirs, ponds, or other water storage facilities will be used after the THP expires as part of a subsequent land development or use phase

LEGEND

-  THP Boundary
-  SPI Ownership
-  Cable Yarding Area
-  Tail-block area only
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Temporary Road



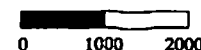
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GENERAL LOCATION SQUIGGLY THP

Contour Interval = 40'
THP Area Site 1

1" = 2400'

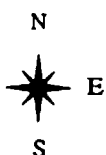
Feet



Timber Harvest Plan Area













Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
sections 13,14,15,22,23,24,26,27; T7N, R15E, MDB&M
sections 19 & 30; T7N, R16E, MDB&M

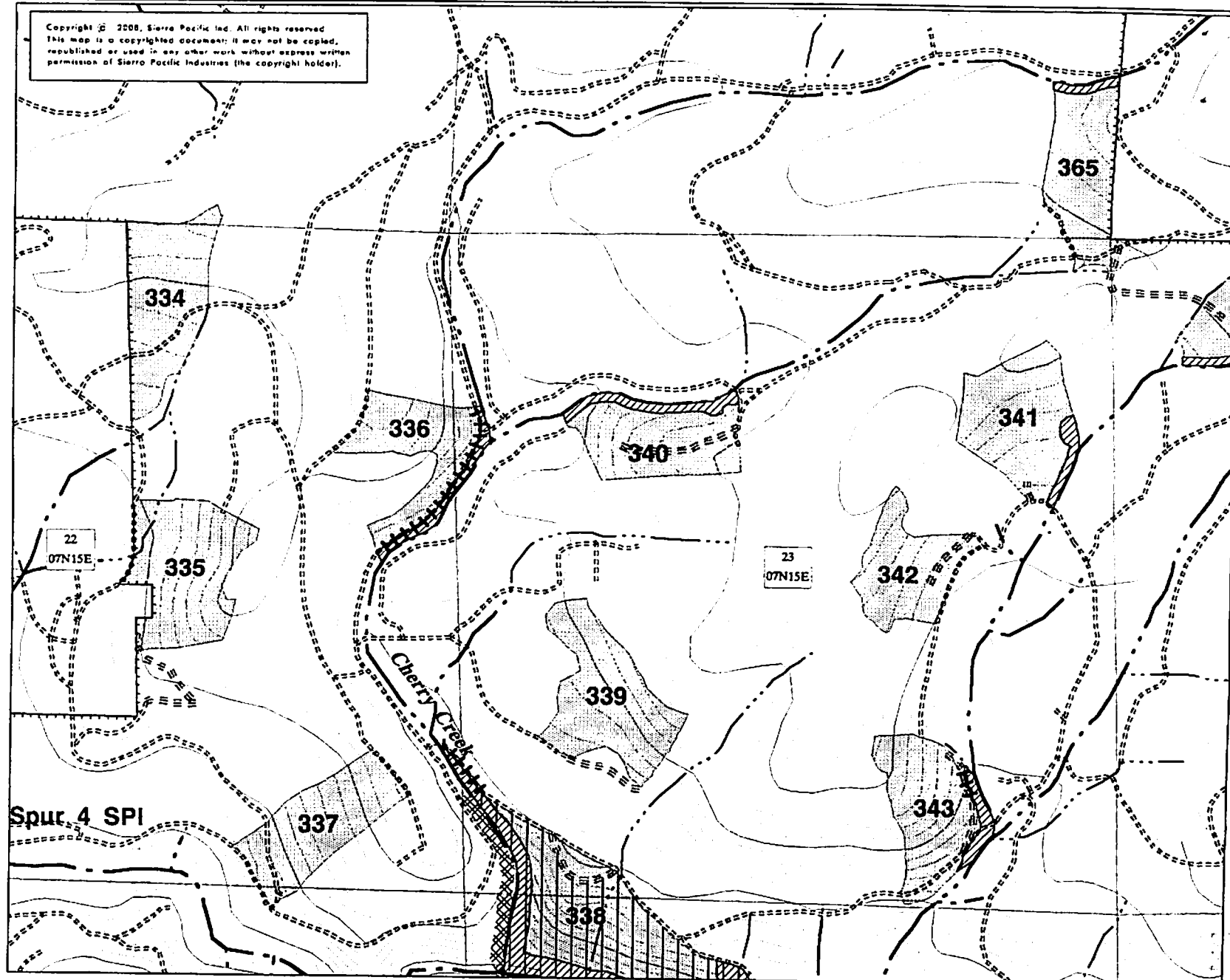
MAY 20 2008



LEGEND

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-  Selection
-  Clear Cut
-  SPI Ownership
-  Cable Yarding Area
-  Tail-block area only
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Temporary Road
-  Road Segment in WLPZ



SILVICULTURE PRESCRIPTION (1 OF 4)

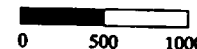
SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

Contour Interval = 40'

1" = 1200'

Feet



Revised Page 25 - 5/15/08

MAY 20 2008



Sierra Pacific Industries

LEGEND

SPL Ownership

Clear Cut

Tail-block area only

Selection

Shelterwood Removal

Cable Yarding Area

Permanent Roads

Seasonal Road

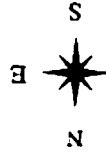
Class I Watercourse

Class II Watercourse

Class III Watercourse

Temporary Road

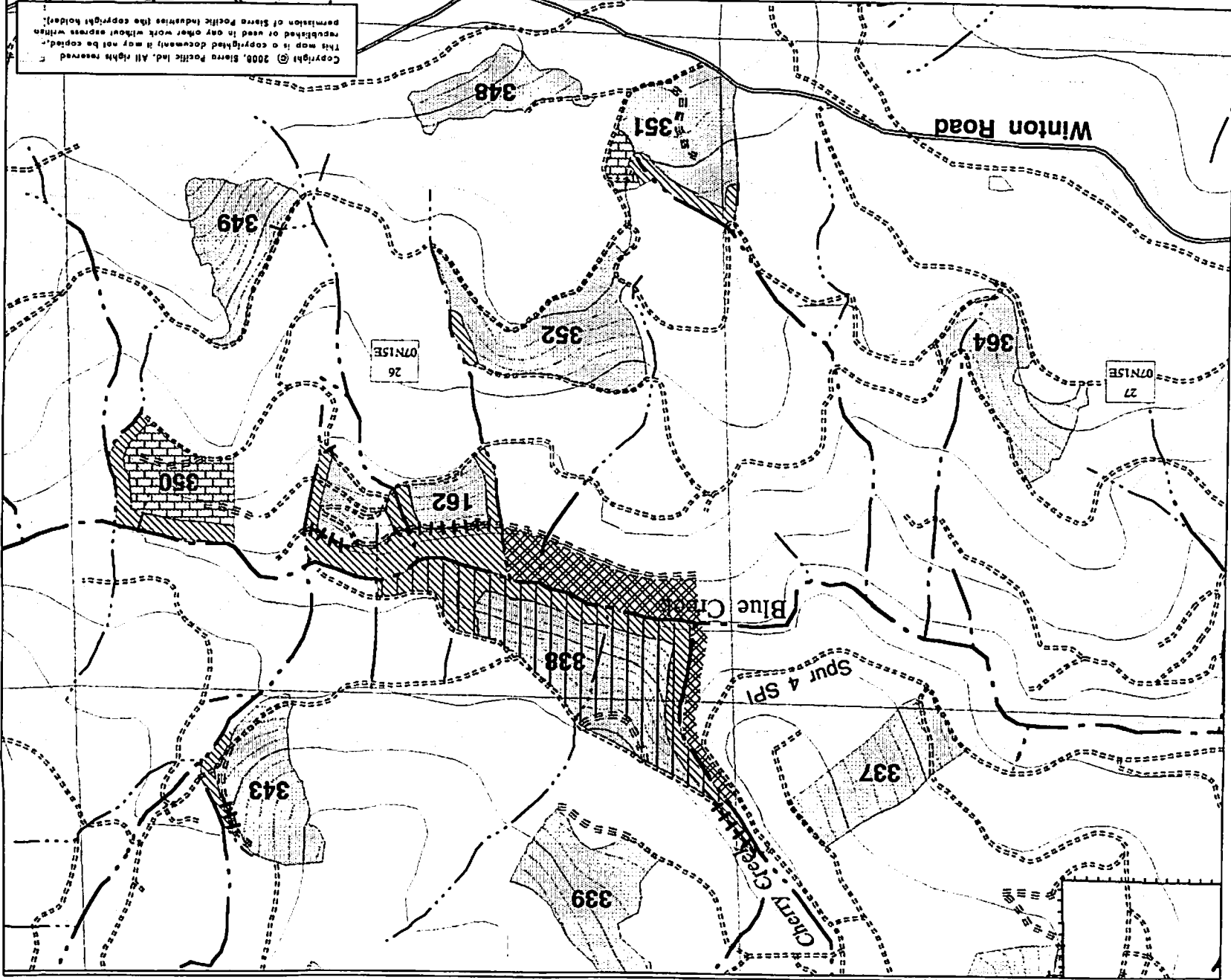
++ Road Segment in WLPZ



MAY 20 2008

Revised Page 26 5/15/08

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Contour Interval = 40'

1" = 1200'

Feet











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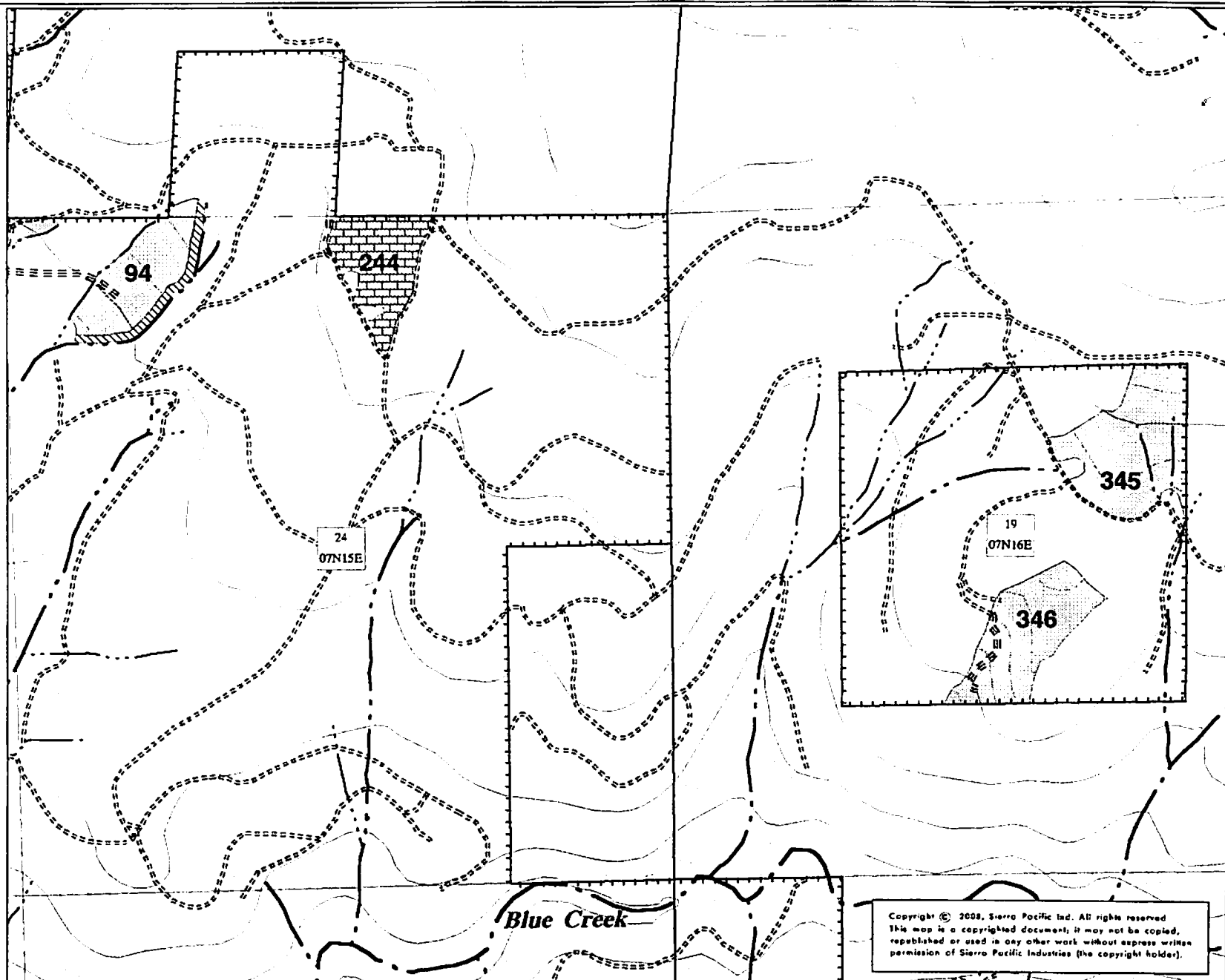
Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

SQUIGLY

SILVICULTURE PRESCRIPTION (2 OF 4)

LEGEND

-  SPI Ownership
-  Clear Cut
-  Selection
-  Shelterwood Removal
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Temporary Road



Blue Creek

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SILVICULTURE PRESCRIPTION (3 OF 4)

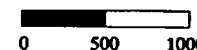
Contour Interval = 40'

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map


1" = 1200'

Feet




LEGEND


 SPI Ownership

 Clear Cut

 Permanent Roads

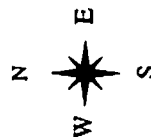
 Seasonal Road

 Class I Watercourse

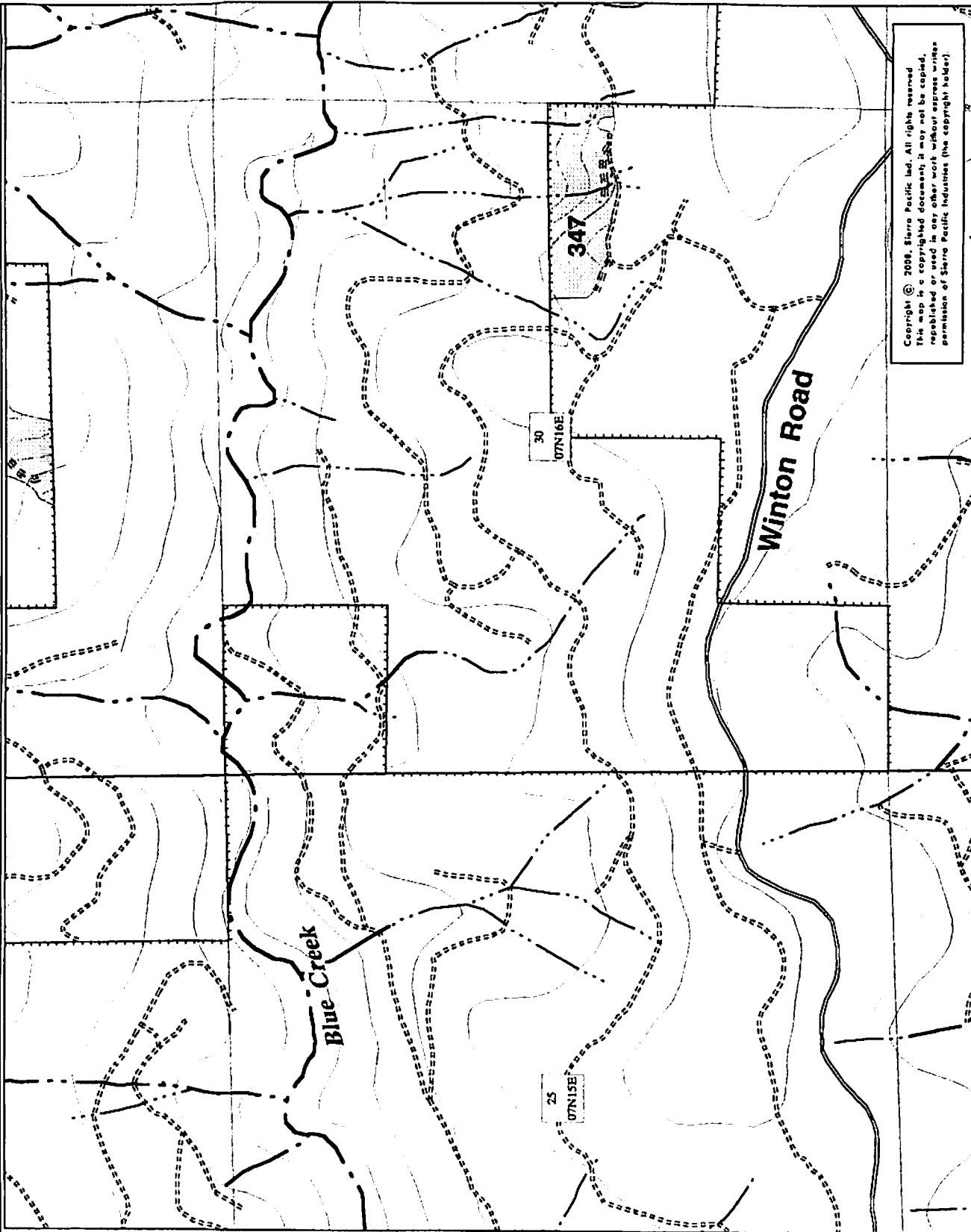
 Class II Watercourse

 Class III Watercourse

 Temporary Road



Sierra Pacific Industries



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Contour Interval = 40'

SILVICULTURE PRESCRIPTION (4 OF 4)

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map















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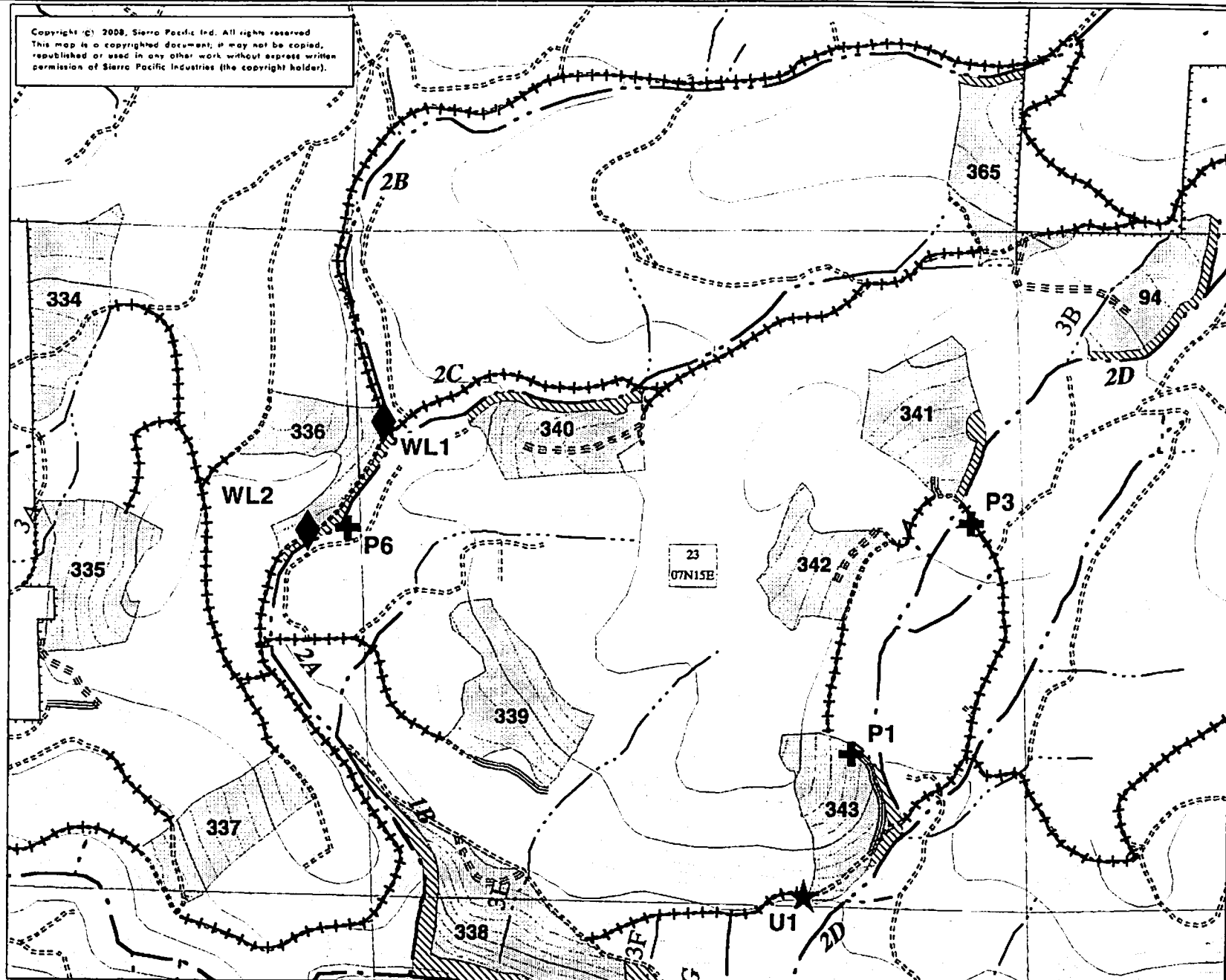
Feet



LEGEND

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-  SPI Ownership
-  Clear Cut
-  Selection
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  New Temporary Road
-  Existing Temporary Road
-  Appurtenant Road
-  In Lieu
-  Project
-  Unstable Area



Appurtenant Roads & Watercourses (1 of 5)

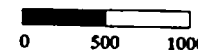
SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

Contour Interval = 40'

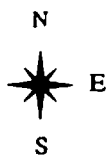
1" = 1200'

Feet

















Revised Page 29 - 5/15/08

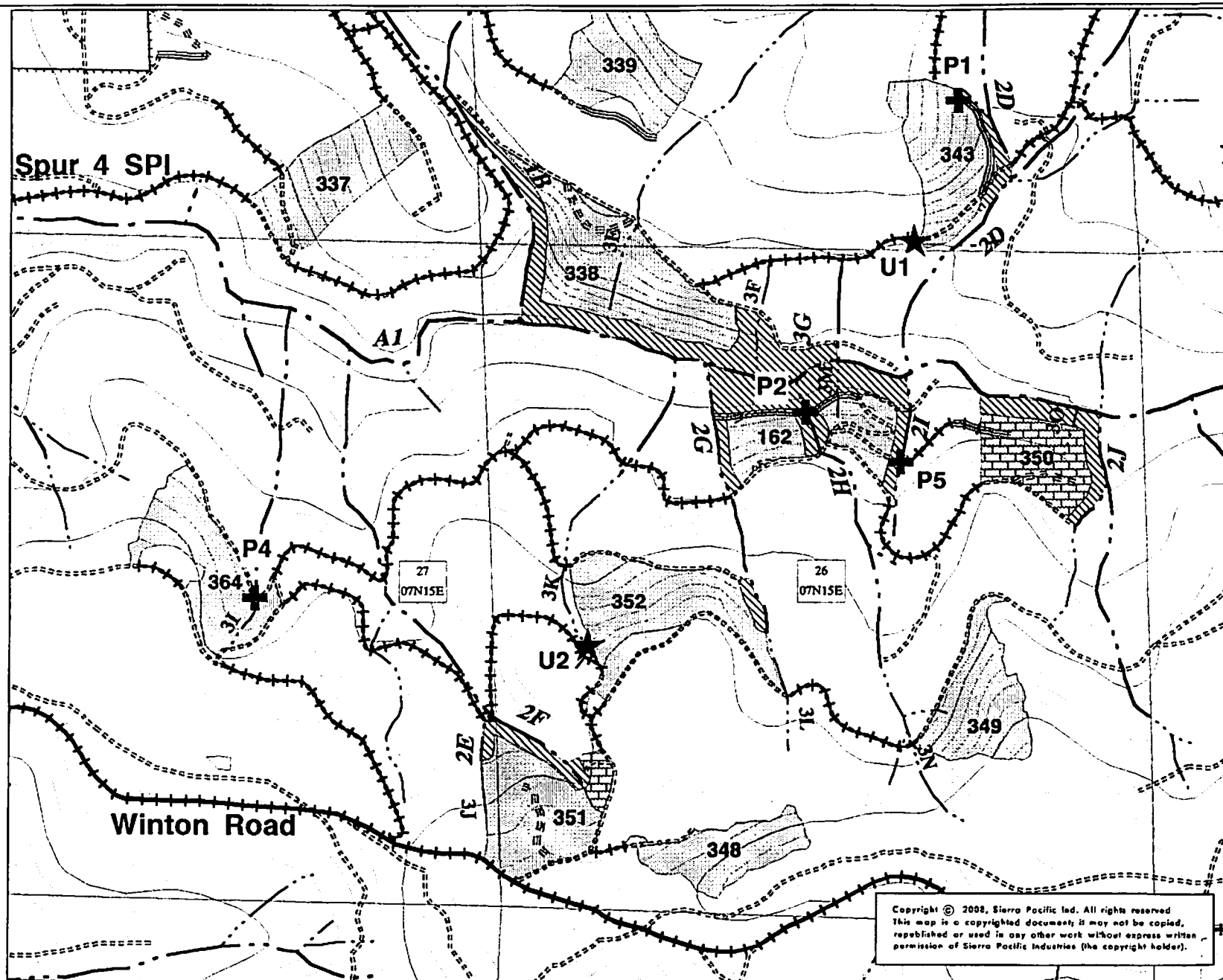
MAY 20 2008



Sierra Pacific Industries

LEGEND

-  SPI Ownership
-  Clear Cut
-  Selection
-  Shelterwood Removal
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  New Temporary Road
-  Existing Temporary Road
-  Appurtenant Road
-  Project
-  Unstable Area



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Appurtenant Roads & Watercourses (2 of 5)

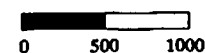
SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map













Contour Interval = 40'

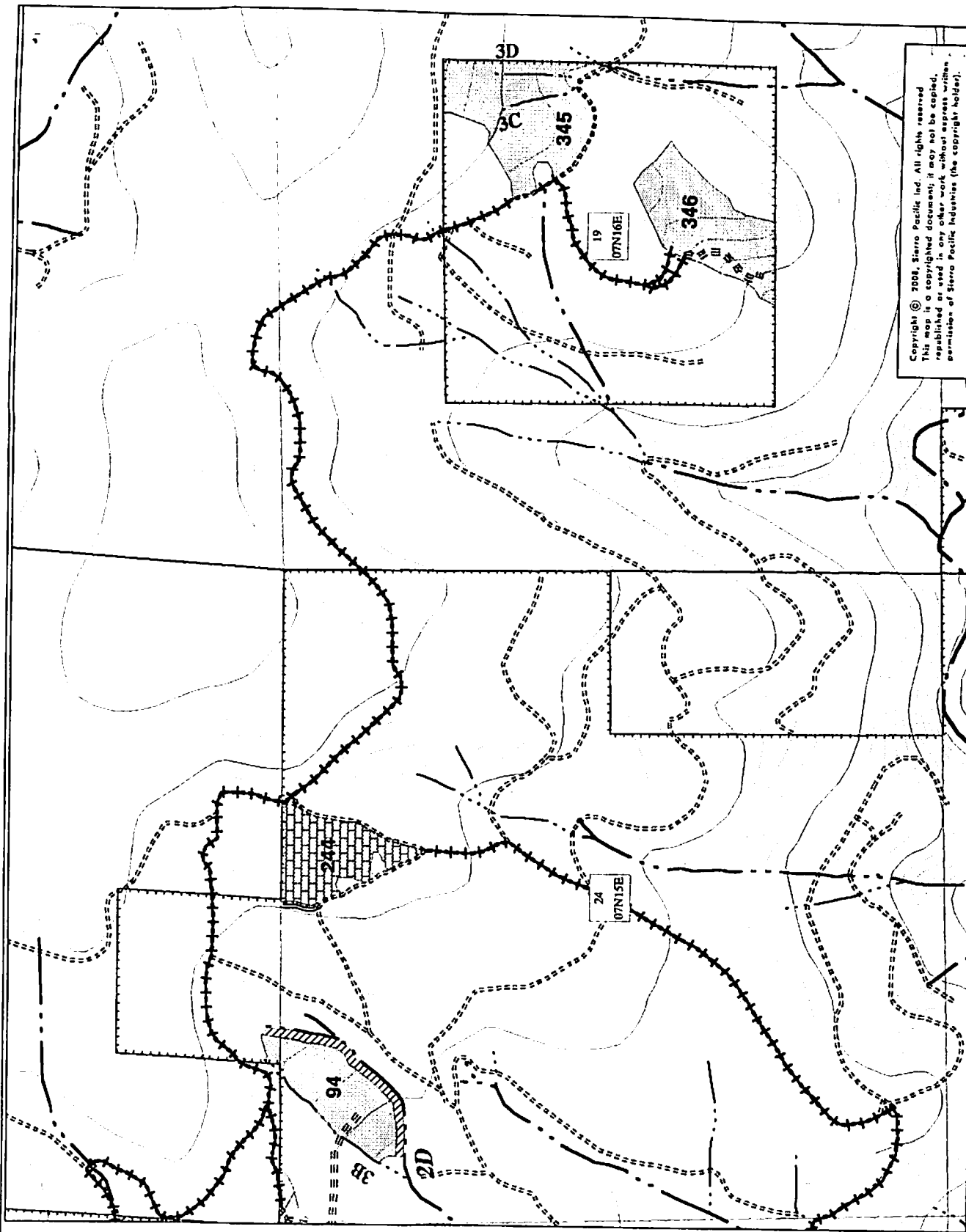
1" = 1200'

Feet

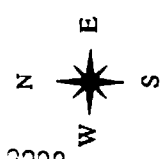


LEGEND

-  SPI Ownership
-  Clear Cut
-  Selection
-  Shelterwood Removal
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  New Temporary Road
-  Existing Temporary Road
-  Appurtenant Road

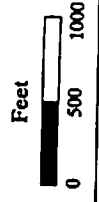


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Contour Interval = 40'

1" = 1200'













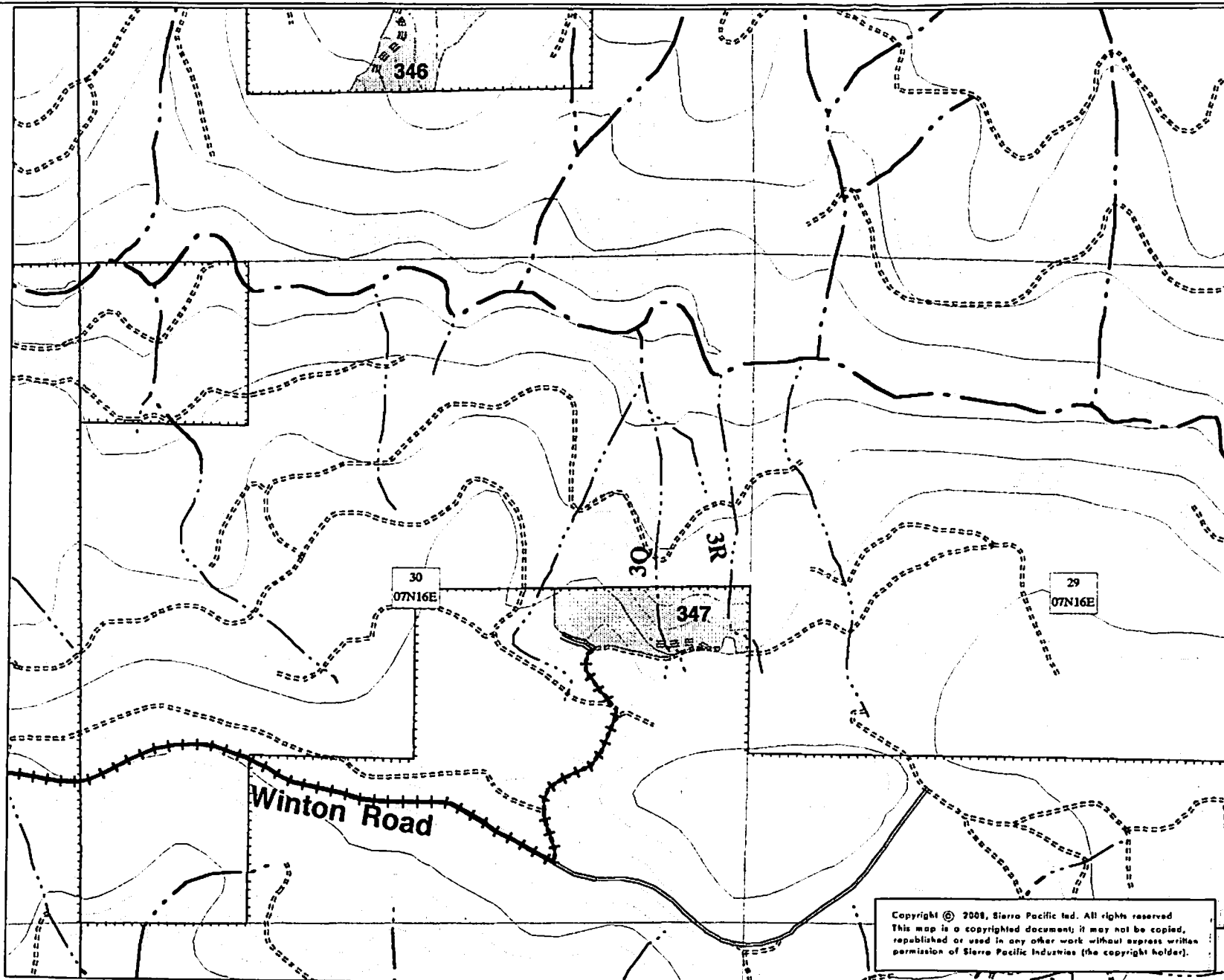
Appurtenant Roads & Watercourses (3 of 5)

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

LEGEND

-  SPI Ownership
-  Clear Cut
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  New Temporary Road
-  Existing Temporary Road
-  Appurtenant Road



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Appurtenant Roads & Watercourses (4 of 5)

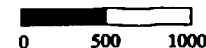
SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

Contour Interval = 40'

1" = 1200'

Feet



LEGEND

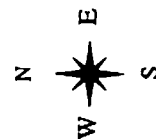
SPI Ownership

THP Boundary

Permanent Roads

Class I Watercourse

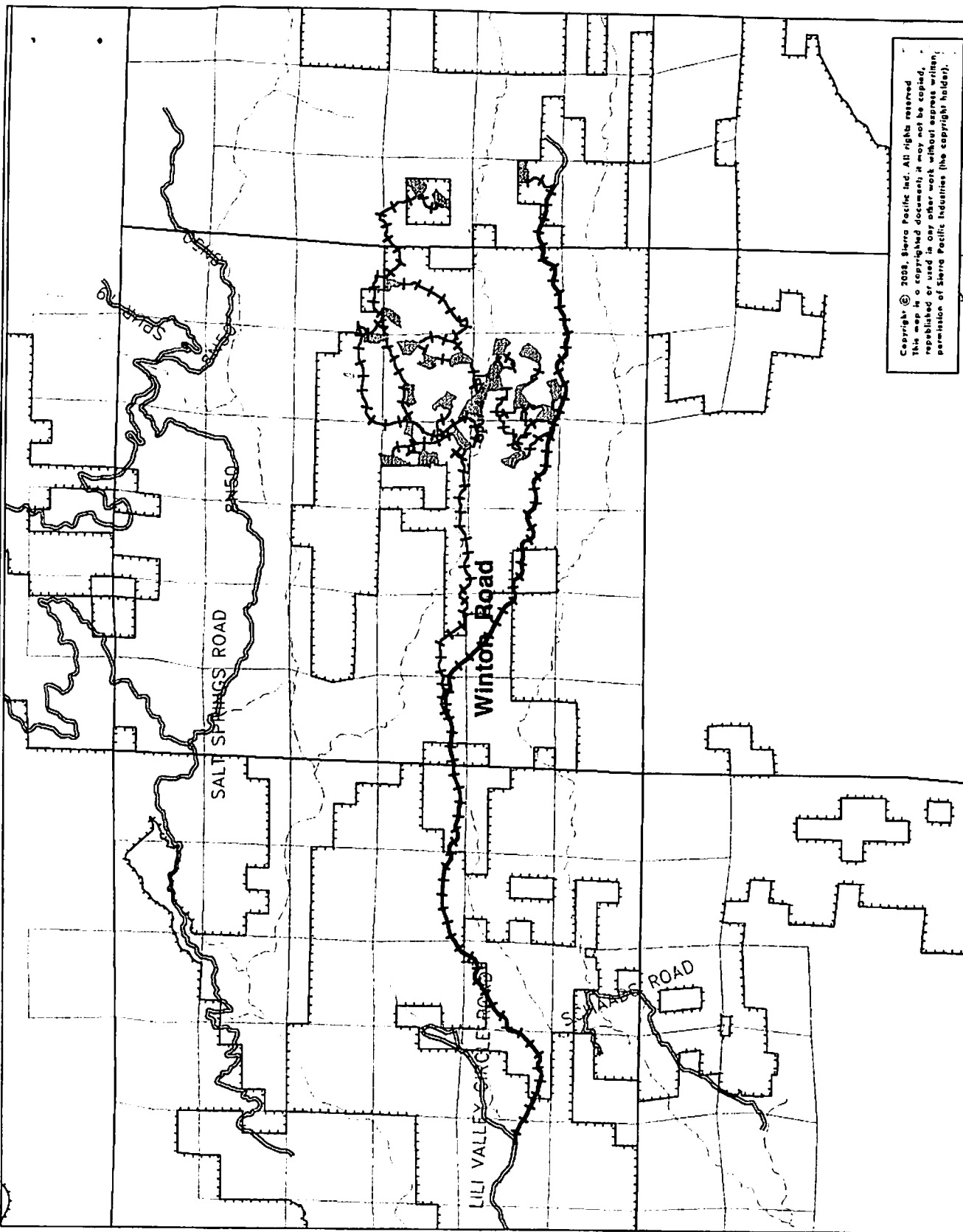
Appurtenant Road



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Additional Page 32.1



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Contour Interval = 40'

1" = 9000'

Feet



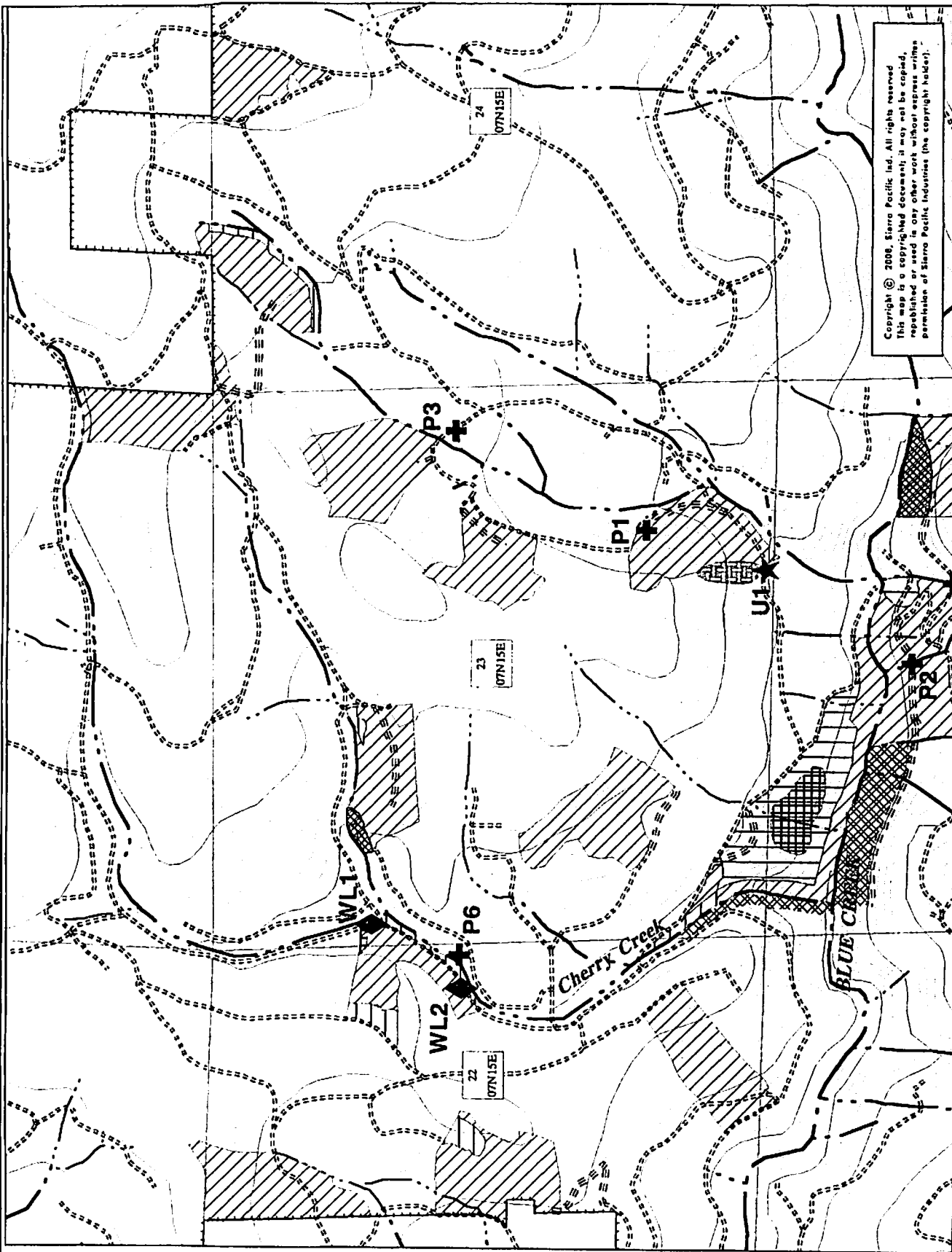
Appurtenant Roads (5 of 5)

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
sections 13, 14, 15, 22, 23, 24, 26, 27; T7N, R15E, MDB&M
sections 19 & 30; T7N, R16E, MDB&M

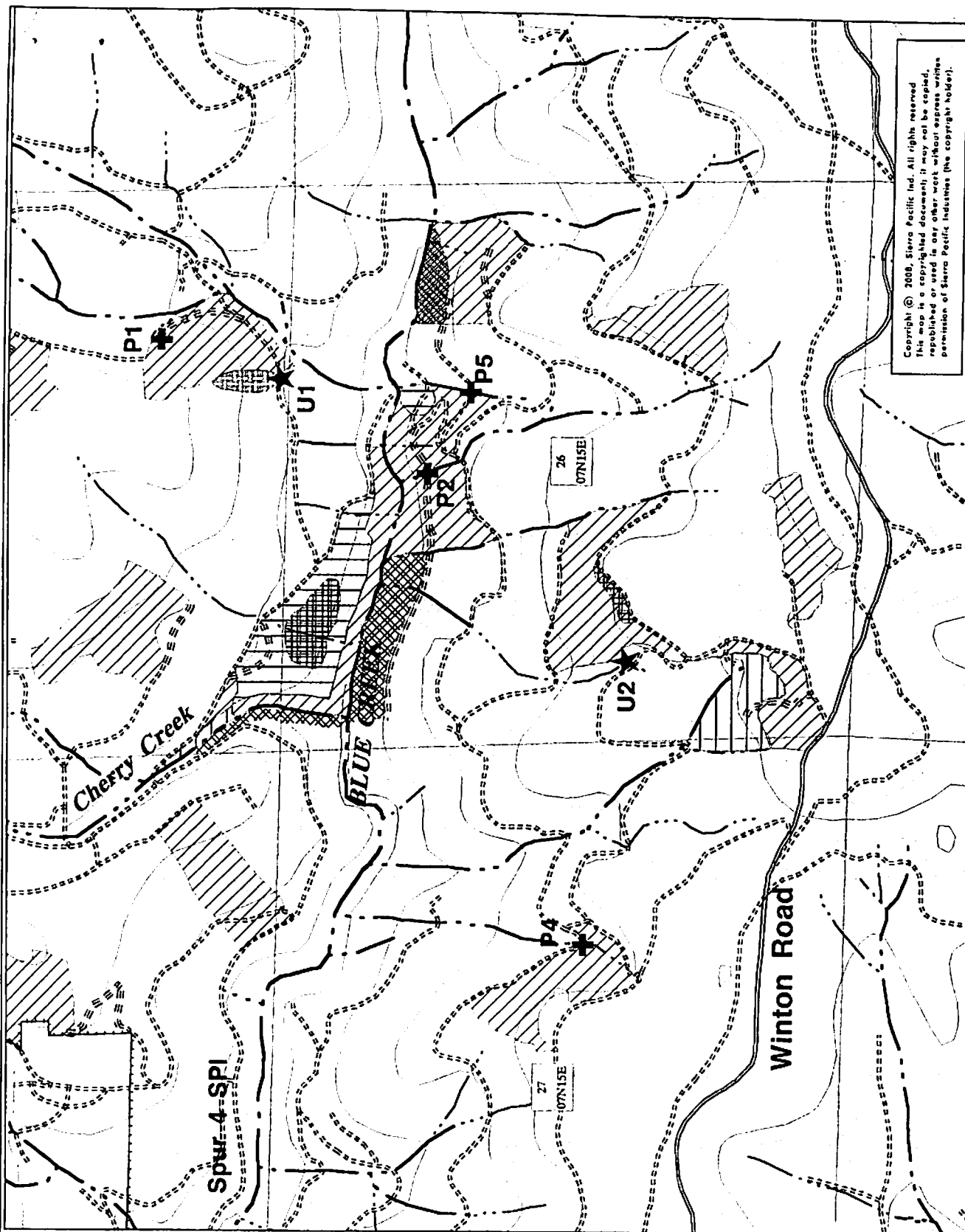
LEGEND

- SPI Ownership
- Low EHR
- Moderate EHR
- High EHR
- Slopes > 50%
- Slopes > 50% w/out flattening
- Slopes > 65%
- Tail-block area only
- Permanent Roads
- Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Temporary Road
- In Lieu
- Project
- Unstable Area



LEGEND

- SPI Ownership
- Low EHR
- Moderate EHR
- High EHR
- Slopes > 50%
- Slopes > 50% without flattening
- Slopes > 65%
- Tail-black area only
- Permanent Roads
- Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Temporary Road
- Project
- Unstable Area



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Contour Interval = 40'

EROSION HAZARD RATING (2 of 3)

SQUIGGLY

1" = 600'

Feet

0 500 1000

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map



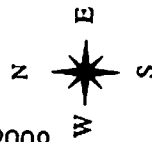
MAY 20 2008

Revised Page 34 - 5/15/08

Sierra Pacific Industries

LEGEND

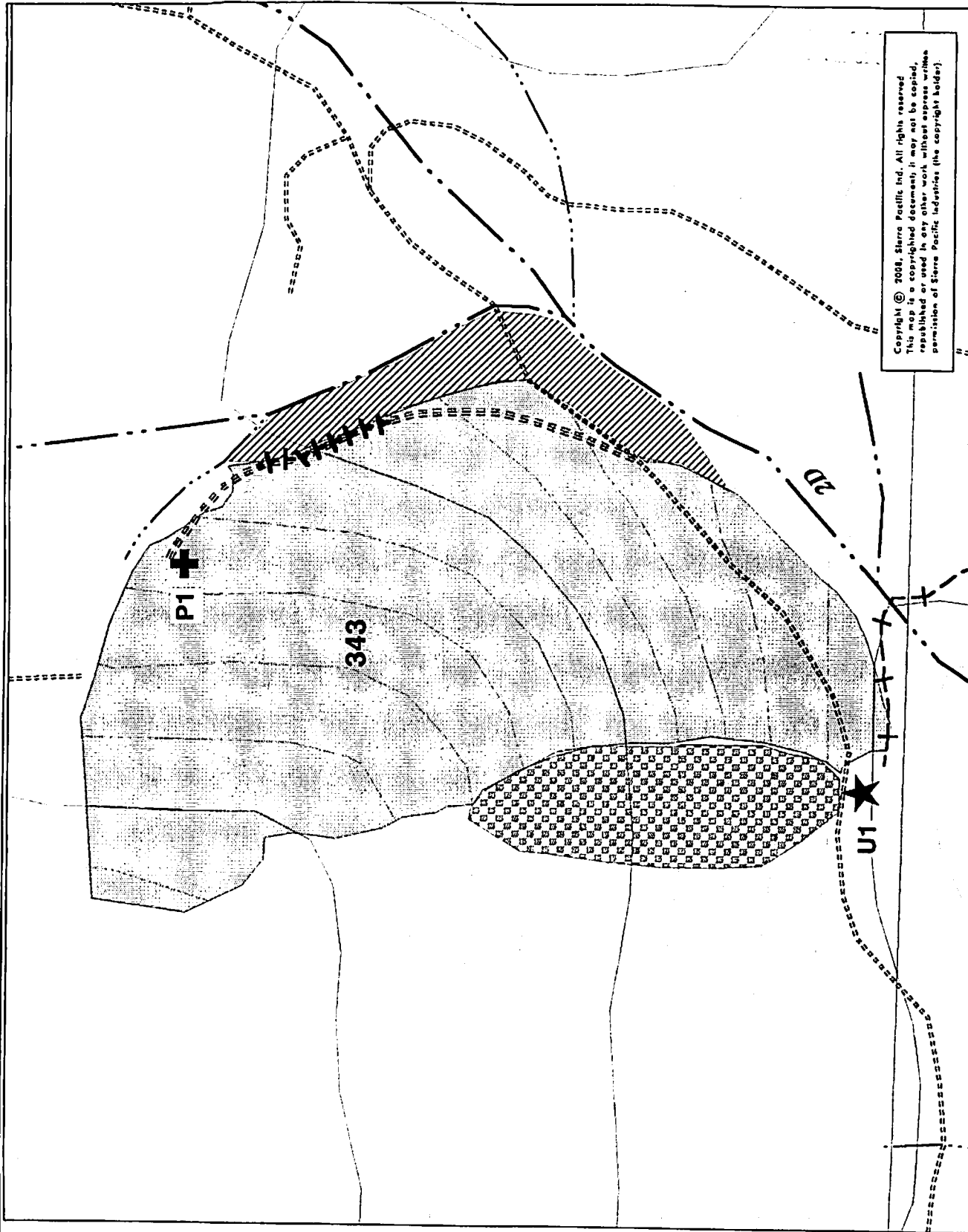
- SPI Ownership
- Clear Cut
- Selection
- Slopes > 50%
- Slopes > 50% W/out flattening
- Slopes > 65%
- Permanent Roads
- Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Temporary Road
- Legacy Road
- Road Segment in WLPZ
- Project
- Unstable Area



MAY 20 2008

Revised Page 36 - 5/15/08

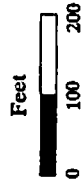
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Contour Interval = 40'

1" = 1200'















Operational Issues - Unit 343 (1 of 5)

SQUIGGLY

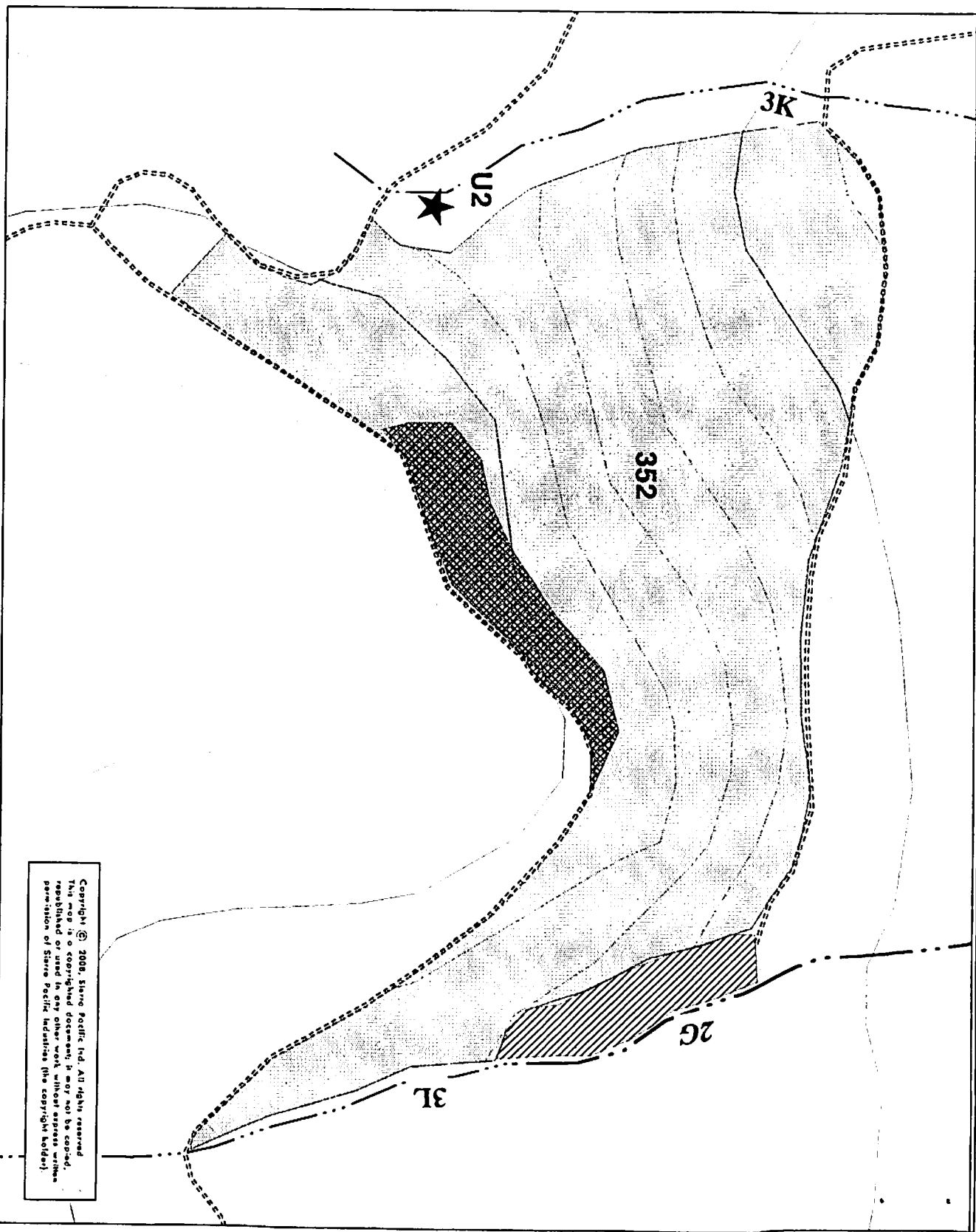
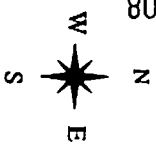
Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

LEGEND

-  SPI Ownership
-  Clear Cut
-  Selection
-  Slopes > 50%
-  Slopes > 50% W/out Flattening
-  Slopes > 65%
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Unstable Area

Revised Page 37 - 5/15/08

MAY 20 2008



Operational Issues - Unit 352 (2 of 5)

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

Contour Interval = 40'

1" = 250'

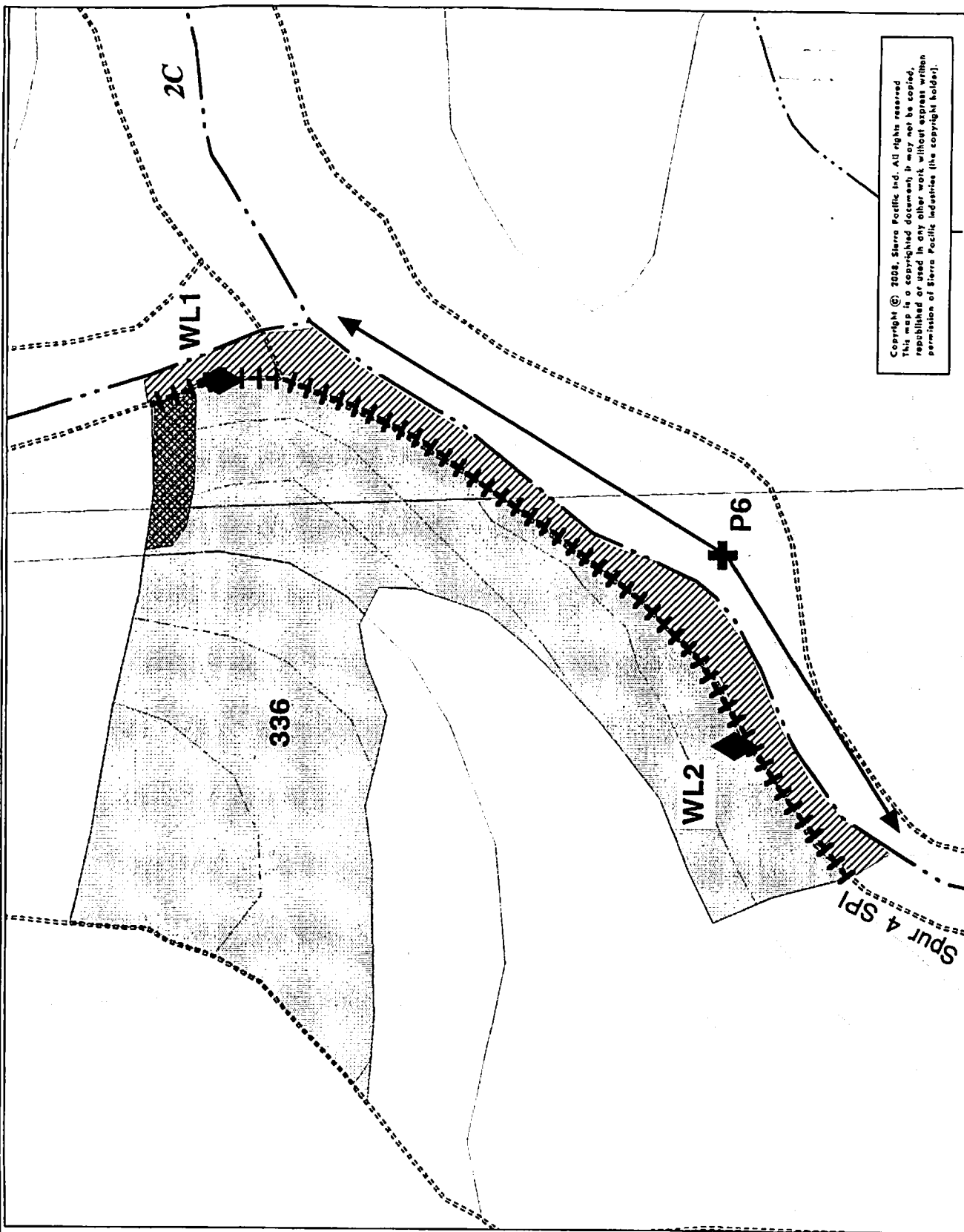
Feet



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LEGEND

- SPI Ownership
- Clear Cut
- Selection
- Slopes > 50%
- Slopes > 50% W/out Flattening
- Slopes > 65%
- Permanent Roads
- Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Road Segment in WLPZ
- In Lieu
- Project



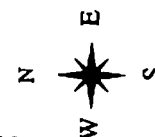
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Contour Interval = 40'
1" = 250'
Feet
0 100 200

Operational Issues - Unit 336 (3 of 5)

SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map















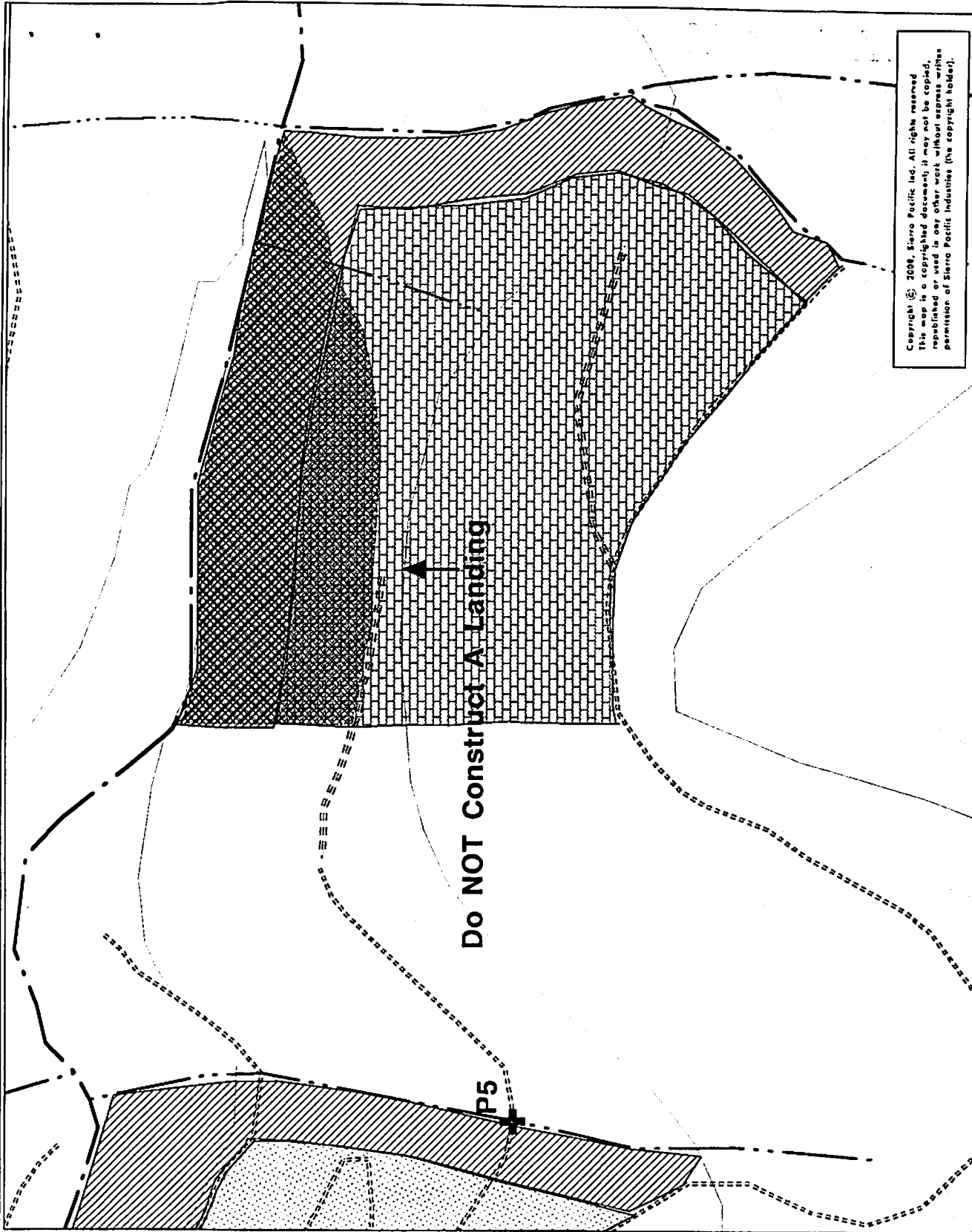
MAY 20 2008

Revised Page 38 - 5/15/08

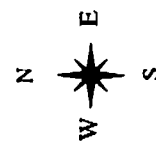
Sierra Pacific Industries

LEGEND

-  SPI Ownership
-  Clear Cut
-  SELECTION
-  Slopes > 50% without flattening
-  SHELTERWOOD REMOVAL
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Temporary Road
-  Project
-  Unstable Area



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Additional Page 38.1

Contour Interval = 40'

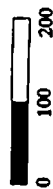
Operational Issues - Unit 350 (4 of 5)

SQUIGGLY













Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

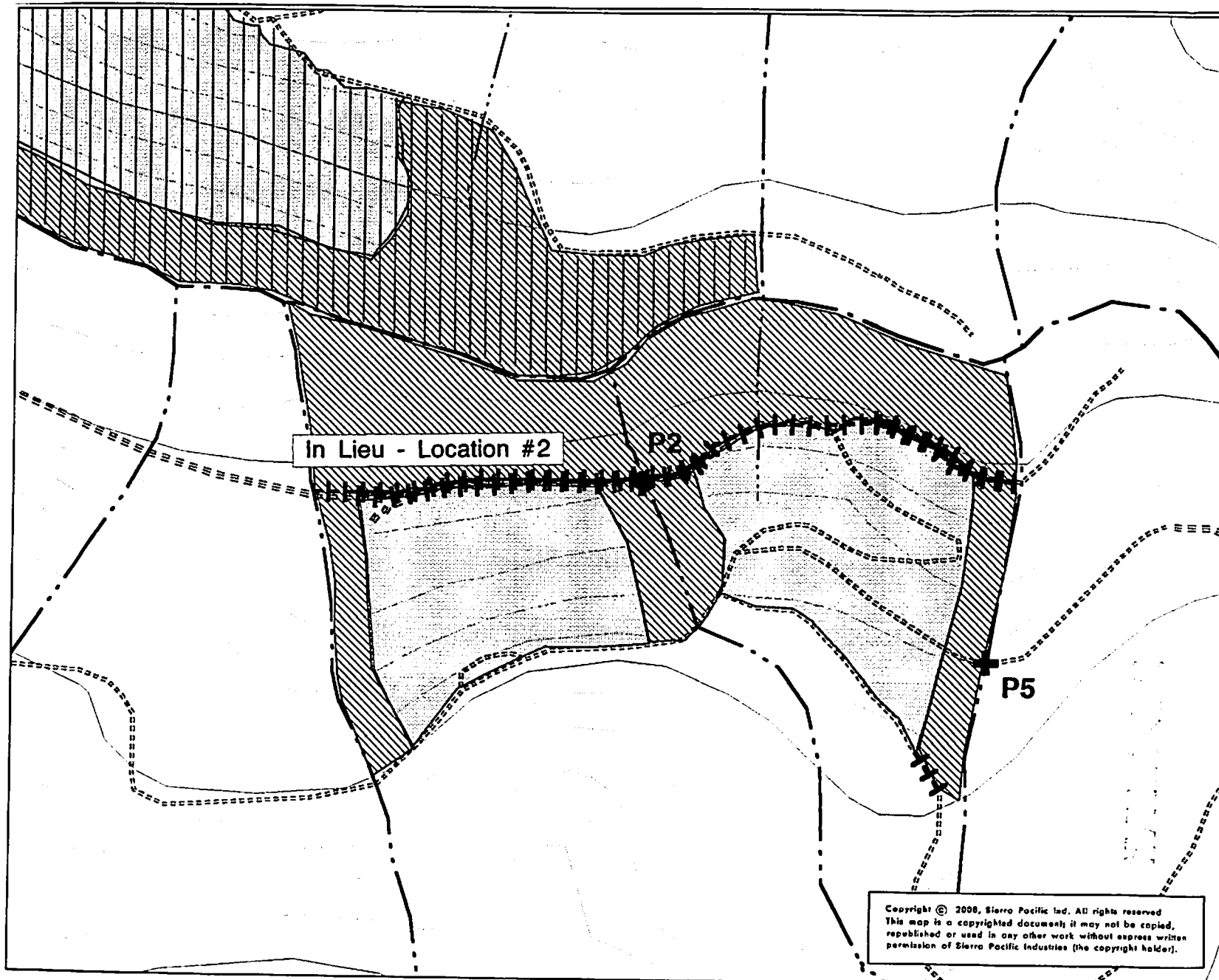
1" = 600'

Feet



LEGEND

-  SPI Ownership
-  Clear Cut
-  SELECTION
-  Cable Yarding Area
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Class III Watercourse
-  Temporary Road
-  Road Segment in WLPZ
-  Project



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Operational Issues - Unit 162 (4.1 of 5) SQUIGGLY

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map

Contour Interval = 40'

1" = 600'








Feet

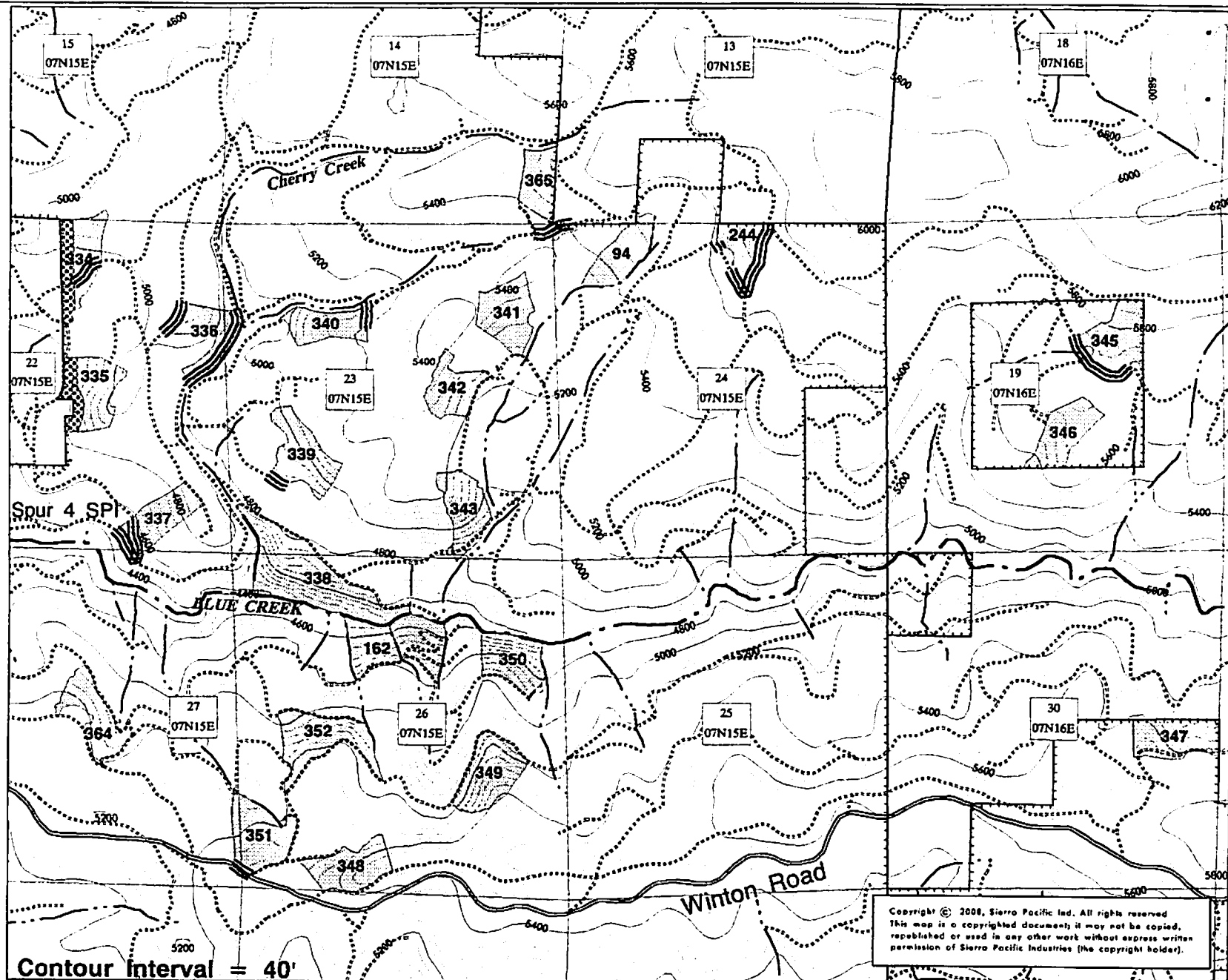


SEP 02 2008
 Additional Page 38.2



LEGEND

-  Squiggly THP Area
-  Hazard Reduction Zone
-  Hazard Reduction Road
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse



Contour Interval = 40'

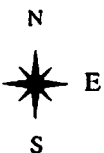
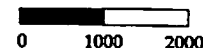
Operational Issues (4 of 5) - Hazard Reduction Zones

SQUIGGLY THP










Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
sections 13,14,15,22,23,24,26,27; T7N, R15E, MDB&M
sections 19 & 30; T7N, R16E, MDB&M

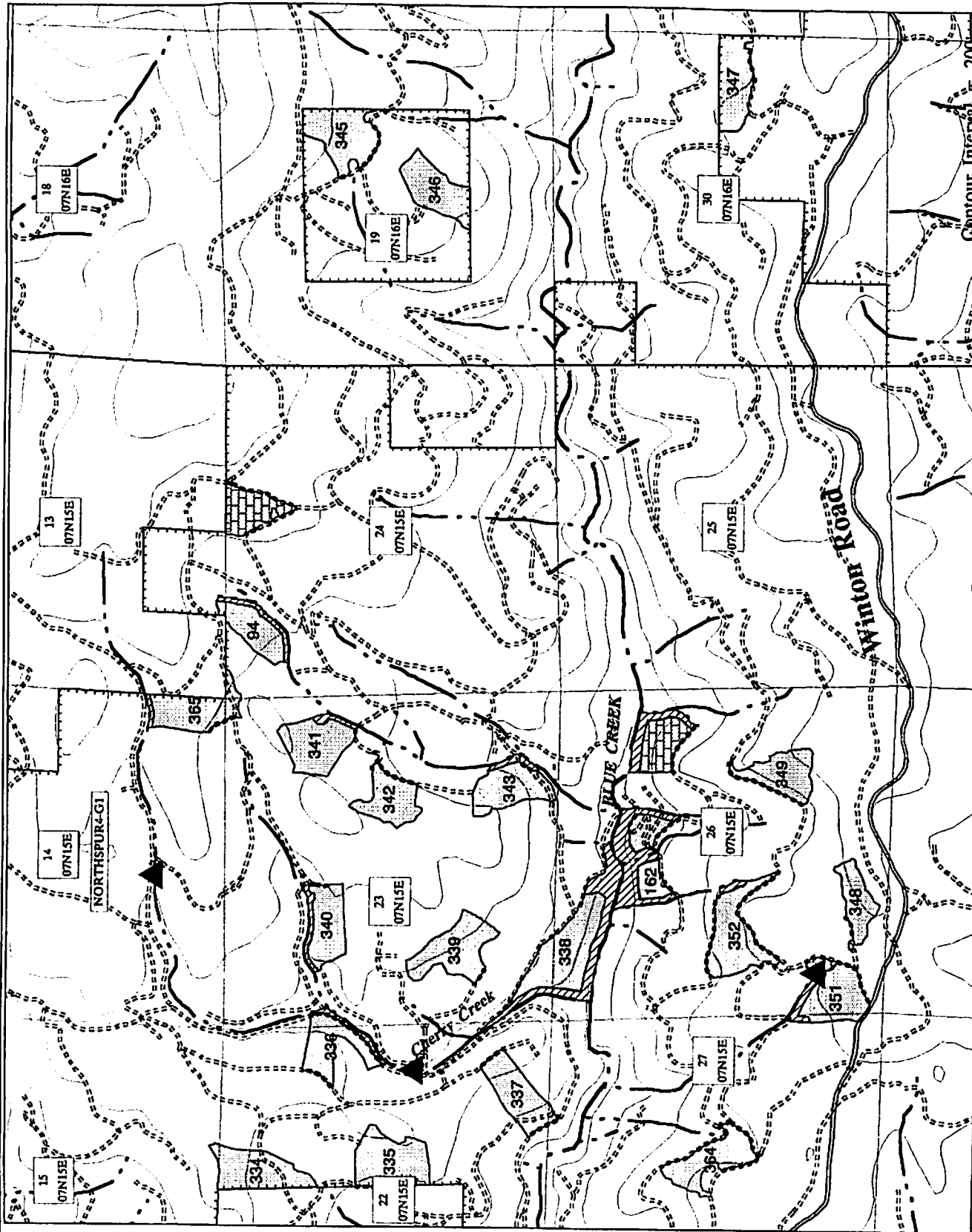
1" = 2400'

Feet



LEGEND

-  Clear Cut
-  SPI Ownership
-  Selection
-  Shelterwood Removal
-  Permanent Roads
-  Seasonal Road
-  Class I Watercourse
-  Class II Watercourse
-  Water Drafting Site



POTENTIAL WATER DRAFTING LOCATIONS

SOUIGGLY THP

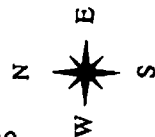
Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
sections 13,14,15,22,23,24,26,27; T7N, R15E, MDB&M
sections 19 & 30; T7N, R16E, MDB&M

1" = 2400'

Feet



MAY 20 2008
Additional Page 39.1



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SECTION III

SUPPORT DOCUMENTATION – SQUIGGLY

General Description Of Physical Conditions

LOCATION

The THP area may be reached by traveling east from the town Jackson on State Highway 88 to the town of Red Corral. At Red Corral travel southbound on State Highway 26 to the town of West Point. The project is located approximately 16 miles East of the town of West Point on Winton Road. Approximately ½ of the THP is located on SPI Spur 4 and approximately ½ is located on SPI Spur 3.

The THP is wholly within the Lower Blue Creek planning watershed and wholly within Calaveras County. The THP is located in portions of sections 13, 14, 15, 22, 23, 24, 26 & 27, T7N, R15E, and sections 19 & 30, T7N, R16E, MDB&M. Elevations range between 4460 feet at the lowest portion of the THP to 5880 feet at the highest portion of the THP. Streams that flow partially within and adjacent to the Timber Harvest plan are Blue Creek, unnamed tributaries to Blue Creek, and Cherry Creek.

TOPOGRAPHY AND SOILS

Soil Series Name

Gerle family – These soils are moderately deep to very deep and formed in glacial debris from granitic rocks. These soils are on perched benches and mountainsides. Slope is 5 to 60 percent. Elevation is 5000 to 9000 feet and the annual precipitation is 45 to 65 inches. Taxonomic Class: Coarse-loamy, mixed, frigid Typic Xerumbrepts.

Holland family – These soils are moderately deep to very deep and formed in material weathered from granitic or volcanic rocks. Permeability is moderately slow. Soil depth is 36-80". These soils are on mountainsides. Slope is 5 to 60 percent. Elevation is 2000 to 7000 feet and the annual precipitation is 30 to 60 inches. Taxonomic Class: Fine-loamy, mixed, mesic Ultic Haploxeralfs.

Josephine family – These soils are moderately deep to very deep and formed in material weathered from metasedimentary rock. Permeability is moderate. Soil depth 40-60". These soils are on mountainsides and rolling hills. Slope is 5 to 80 percent. Elevation is 2000 to 5000 feet and the annual precipitation is 30 to 55 inches. Taxonomic Class: Fine-loamy, mixed, mesic Typic Haploxerults.

McCarthy family – These soils are moderately deep to deep and formed in material weathered from andesitic tuff breccia and similar volcanic rocks. These soils are on rounded ridges and mountainsides. Slope is 5 to 60 percent. Permeability is moderate to rapid. Soil depth 20-40". Elevation is 3000 to 7000 feet and the annual precipitation is 35 to 60 inches. Taxonomic Class: Medial-skeletal, mesic Andic Xerumbrepts.

Windy family – These soils are moderately deep to deep and formed in material weathered from andesitic agglomerate tuff. These soils are on ridges and mountainsides. Slope is 5 to 70 percent. Permeability is moderately rapid to moderate. Elevation is 5500 to 8000 feet and the annual precipitation is 50 to 65 inches.

Taxonomic Class: Medial-seletal, frigid, Andic Xerumbrepts

Wilder family – These soils are very deep and formed in material weathered from granitic rocks. These soils are on mountainsides. Slope is 5 to 50 percent. Elevation is 3000 to 5500 feet and the annual precipitation is 30 to 55 inches.

Taxonomic Class: Coarse-loamy, mixed, mesic Pachic Xerumbrepts.

Lithic Cryumbrepts – These soils are shallow soil formed in material weathered from andesitic tuff. These soils are on ridges and associated spurs of mountainsides. Slope is 10 to 100 percent. Elevation is 5500 to 11000 feet and the annual precipitation is 45 to 65 inches.

Rock Outcrop – These soils consist of 85% or more exposures of bare bedrock. It occurs at nearly all elevations within the area, but covers a greater portion of the area above 8,000 feet elevation. These are less than 15 percent inclusion of areas with enough soil material to support plants. Rock types include all the bedrock present within the area, but granitic and volcanic bedrock predominates. The granitic outcrops are usually crags, cliffs or large rounded knobs below the major glaciations (below about 7000 feet elevation), and large expanses of smooth, polished rock faces with joints and cracks where glaciated, with no soil present except in cracks. Volcanic rock outcrop is strongly to moderately consolidated tuff-breccia of the Mehrten formation. The surface is usually rough and broken, with shallow pockets of detritus.

Metasedimentary rock outcrop is usually very rough and jagged owing to the nearly vertical bedding planes of the schist and slate. Small amounts of soil material sometime fill small joints bedding planes.

Mehrten Formation – Referencing the Geologic Map of the Sacramento Quadrangle – two large regions adjacent to and bordering the THP demonstrate concentrations of Mehrten Formation. These regions exist along the ridge directly north of Blue Creek and on the ridge directly south of the THP area; where Winton Road travels. These areas border some of the units where the Clearcut Silviculture is proposed. These areas are not associated with any current instabilities or proposed road-building activities. Mehrten formation information was obtained from the Regional Geologic Map Series-Geologic Map of the Sacramento Quadrangle, California, 1:250,000 Published 1981.

Erosion Hazard Rating (EHR) within the THP is Low, Moderate and High.

Note: The Soil Survey for the Stanislaus National Forest and Calaveras County soils maps were used to determine the soil series present within the proposed plan and aided in the Erosion Hazard Rating evaluation.

Site Class – Site potential within the proposed THP area is Dunning Site Class I and Class II. There are some small inclusions of lower site ground found within the plan area, unless excluded as no harvest; these areas will not affect meeting the overall stocking requirements for Site Class I timberlands.

VEGETATION AND STAND CONDITIONS

The proposed plan area is occupied by common sierra mixed conifer vegetation types and associations. Continuous Tree Management Systems (CTMS) individual plot data indicates basal area for the proposed plan area averages 137 sq. ft/ac, with a great variation in stocking to be

found over the plan area. Several of the commercial tree species typically found in a Sierra mixed conifer forest are present in the following representative distributions based on basal area:

Average Pre Harvest Basal Area per Acre		
Species	Percent Composition by Basal Area	Pre - Harvest Basal Area per Acre (sq.ft.)
Ponderosa Pine	20%	27
Sugar Pine	10%	14
Douglas-fir	3%	5
Incense Cedar	42%	57
White fir	21%	29
Hardwood	4%	5
TOTAL	100%	137

Understory vegetation is typical for this elevation belt in the Sierra Nevada. This includes Manzanita, white thorn, gooseberry, deer brush (Ceanothus), bear clover, California laurel and riparian vegetation such as alder, cottonwood, maple and dogwood.

Some blister rust is evident in the sugar pines, and mistletoe in white fir and ponderosa pine. Although these diseases are present, they are not found at a level that would be considered abnormal or near epidemic stages for this region of the Sierra Nevada.

OLD GROWTH FOREST EVALUATION

There are no late successional or old growth forest stands within the THP area, either harvested or non-harvested, as defined by the Director and the State Board of Forestry.

WATERSHED AND STREAM CONDITIONS

Class I Watercourses

Two class I streams occur within the THP boundary; Blue Creek and Cherry Creek. Blue Creek is a larger high volume stream exhibiting a wide channel with a very high composition of large boulders and bedrock. Gravel and cobble stone deposits are plentiful and occur regularly. Abundant pools are present providing good in-stream habitat for fish and other aquatic species. Cut banks along Blue Creek are high and steep and there is evidence of continuing bank cutting and incision during high flow events. Canopy closure is greater than 80% at the stream banks and slightly less within the stream due to the large width of the stream. The stream channel is in stable condition with a low to moderate amount of debris jamming, yet large woody debris is abundant.

Cherry Creek flows down a much steeper course into Blue Creek and demonstrates a much narrower channel. Cherry creek exhibits abundant small pools, boulders, and heavy gravel beds. Additionally large woody debris is frequent within the channel. 90% to 100% canopy closure exists throughout the length of Cherry Creek. Bank cutting and mass wasting appears to be minor to absent and in stream deposition is occurring in the form of gravel beds.

Class II Watercourses

Overall, the Class II watercourses in this area can be characterized as being confined watercourses that are generally lined with moderately dense riparian vegetation. Channel bottoms characteristically have gravel to cobble size flat and angular rocks, underlain by bedrock. The January 1997 storm event was a rain-on-snow event that caused a number of streambed

and near-riparian effects of the channels. The majority of the watercourses in the area show signs of downcutting, recent incision, exposed raw banks, and signs of lateral erosion. Some debris jamming occurred as vegetation bordering the watercourses fell into the watercourse. Other (existing) debris jams were moved downstream or were totally removed by the force of the runoff. There is a considerable amount of streamside vegetation providing support along the stream banks. There appears to be a more stable stream substrate (cobble, rock or gravel) in the stream bottoms.

There are several Class II watercourses within the THP area. Some of these streams exhibit sufficient flows of water for most of the year. In the late summer, some of these watercourses run dry except for isolated pools and spring areas. The stream banks are well covered with large and small conifers with and an abundant shrub layer at the ground level. All Class II watercourses have >80% canopy cover. The stream channels appear stable with many of the steep portions having a bedrock channel bottom where large boulders are frequent.

Class III Watercourses

Most Class III watercourses within the plan area are dry throughout most of the year, or may only flow during extreme events like the storm in 1997. None of the watercourses exhibit a high potential to transport sediment except under extreme conditions, which would result in the removal of down woody material, and vegetation is currently providing channel rehabilitation and/or stabilization. Most Class III watercourses appear in good shape, with a stable channel profile. Other areas show signs of debris jamming mostly from naturally occurring dead vegetation (abscised limbs and branches, litter, and dead trees falling-over which have died from suppression or light exclusion). The Class III watercourses that exhibit signs of raw exposed banks or downcutting of stream channel may be a result of the January 1997 storm event.

SITE QUALITY - SITE DETERMINATION AND SITE TREES

To accurately determine the site qualities present, the following process was used: Based on existing forest stand structure and conditions, the harvest areas were determined and delineated, and the harvest area was separated into the forest type presently occupying the plan area, Sierra mixed conifer. This forest type is very common in the coniferous region of California's Sierra and much information in the form of growth, yield, stand and volume tables exist. Such as the information found in "Preliminary Yield Tables for Second Growth Stands in the California Pine Region"(Dunning and Renieke, 1933), "Yield, Stand, and Volume Tables for White Fir in the California Pine Region"(Schumacher, 1926), "Yield of Even-aged Stands of Ponderosa Pine"(Meyer, 1938), and "Growth Models for Ponderosa Pine: Yield of Unthinned Plantations in Northern California" (Oliver and Powers, 1978). Site trees were chosen in each of the different silvicultural prescriptions within the harvest area based upon information found in the Dunning and Renieke, Schumacher, Meyer, and Oliver and Powers publications. Trees measured were the average dominant and co-dominant trees as determined by the yield tables for that forest type. Tree data was obtained from the Martell District Continuous Tree Management System (CTMS) individual plot data, a variable radius cruise conducted during the 1999 and 2000 field season. The entire THP area has been classified as site I timberlands.

Item # 14 (c)

Item number 14 states that evenage regeneration step units will not be larger than those specified in the rules. The acres listed within the chart below are an approximation based upon computer modeling and use of high quality hand held GPS devices. The GPS mapping device used during the preparation of this THP is an average high grade model and reported an accuracy of less than 10 meters and 95% typical; subject to accuracy degradation to 100m 2DRMS under the U.S. DoD imposed Selective Availability (SA) Program when activated.

Acres Per Clear Cut Unit	
Unit Number	Approximate Acres
94	13
162	12
334	20
335	20
336	14
337	17
338	26
339	20
340	15
341	18
342	14
343	<u>17</u>
345	20
346	17
347	18
348	12
349	15
351	17
352	20
364	17
365	17

Explanation And Justification Of Section II Questions

Item #14 (a) – Silvicultural Methods

All of the below listed and described silviculture prescriptions conforms to SPI's approved Option A, demonstration of MSP on file with CDF at its southern forest district office.

Clearcut Units

➡ This THP proposes 359 acres within 21 units of the Clearcut silviculture. The units range in size from 12 to 26 acres and are separated by a logical logging unit that is at least as large as the area being harvested. The Clearcut units are irregular in shape and variable in size to the extent possible, given their proximity to property line boundaries dividing land ownership, roads, breaks in terrain, rock outcroppings, watercourses, and other natural terrain features. The Clearcut units will meet stocking with an average point count of 300 trees per acre within five years, subsequent to completion of timber operations.

953.1(a)(2) of the California Forest Practice Rules states that, "...*regeneration harvest of evenaged management shall be limited to 20 acres for tractor...*" and that unit size may be increased up to 40 acres when explained, justified and approved by the Director. No Tractor units greater than 20 acres are proposed for within this THP. Acres for this plan were determined from the digital layers of SPI's mapping program and confirmed by observation, ground truth, and occasionally with the aid of a GPS device.

In an effort to achieve maximum sustainable production of high quality timber products across the ownership, as much land as feasible has been brought back into production through site preparation activities. These areas are either open, contain a high density of undesirable brush species, or environmental conditions have resulted in low forest growth results. Some of these areas are adjacent to Clearcut units. Site preparation activities of these low production areas will likely take place simultaneously with the site preparation activity of the associated nearby Clearcut unit. These activities will likely result in "holes" being created in connection to or directly adjacent to the Clearcut unit; thus adding acres to the size of opening being created. This is not considered timber operations since no timber is being harvest. Additionally this activity does not change the boundary, or rules associated with, of the Clearcut units.

Selection

➡ There is a broad range of size and age classes within the areas selected for the Selection silvicultural harvest method totaling 53 acres. The Selection regeneration method is proposed only within the WLPZ areas.

Where the Selection regeneration method is proposed trees shall be harvested potentially from all of the merchantable size classes while promoting uneven-aged attributes. Uneven-aged attributes include the establishment and/or maintenance of a multi-aged, balanced stand structure, promotion of growth on leave trees throughout a broad range of diameter classes and the encouragement of natural reproduction. All snags will be retained with the exception of those deemed to represent a safety hazard to workers and/or equipment. Cull trees with marginal merchantability may be recruited for future snags, Large Woody Debris, or wildlife habitat trees.

Item 14 (b): Considering the high level of stocking in the areas designated for Selection harvest and the additional retention standards within the WLPZ harvest areas the residual basal area is expected to be greater than the below stated standard. At least 100

square feet per acre of basal area shall be retained. The average residual stocking will be 100 to 120 sq. ft. of basal area per acre.

WLPZ Selection areas combined - Average Pre Harvest Basal Area per Acre			
Species	Percent Composition by Basal Area	Pre - Harvest Basal Area per Acre (sq.ft.)	Approximate Post - Harvest Basal Area per Acre (sq.ft.)
Ponderosa Pine	19%	40	20
Sugar Pine	4%	8	5
Douglas-fir	40%	83	40
Incense Cedar	11%	22	10
White fir	26%	54	25
TOTAL	100%	207	100

Item 14 (d): Conifers selected for harvest will display a painted blue "slash" mark on both the bole and the stump. Designated wildlife trees throughout the unit area will be marked with a painted orange "W" at approximately DBH. Snags will be retained as outlined in item 33, Section II. Wildlife structure trees (trees with an obvious decay, cavities, or deterioration) will be retained for snag recruitment.

Shelterwood Removal Step:

There are 24 acres of Shelterwood removal proposed for this THP. The majority of this area exhibits advanced regeneration with remnant overstory trees (in the form of seed trees or Shelterwood trees) ranging in size from medium-to-large saw timber (>24" dbh). The overstory in some cases is scattered, averaging 20 trees per acre. The overstory trees vary in age from 40 to 120 years old. The overstory trees shall be removed in those areas with sufficient regeneration.

The objective is to use an evenage silvicultural method to maximize growth and production of the stands. Conifers selected for harvest will display a painted blue "slash" mark on both the bole and the stump. The minimum stocking standards of 14 CCR 952.7(b)(1) shall be met immediately upon completion of operations. This area currently meets and exceeds 952.7(b)(1), the 300-point count standard, and shall do so upon completion of operations.

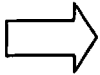
Item #14 (i) – Site Preparation Addendum

Mechanical Site Preparations: Within the tractor pile areas, some piles may be incidentally left unburned or partially burned. Although it is not a goal to leave these piles, there is a recognized benefit for wildlife. Leaving some of these piles provides additional habitat elements on the landscape. Some species that may benefit from these remnant piles include small birds (such as quail), rodents and small mammals (such as squirrels and wood rats), and large mammals (like the black bear).

Item #17 – Erosion Hazard Rating

The Erosion Hazard Rating was determined using procedures listed in the "California State Board of Forestry Technical Rule Addendum Number 1 (Procedure for Estimating Surface Soil Erosion

Hazard Rating)." In determining "Slope Factors", the Addendum states, "...general slope characteristics are considered in making slope measurements." This was done in determining Slope Factors (and the resulting EHR rating) for this THP. There are, however, some instances where small areas within the THP may have a slope steeper (or less steep) than the "general slope characteristics" mentioned above, and in these instances, actual in-field slope measurements may not seem to agree with what is listed in the EHR Worksheet.



Item #27 – Explanation and Justification of in-lieu a & f

Explanation of in-lieu: Standard Rule 956.3 – General Limitations near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas.

956.3(c) The timber operator shall not construct or reconstruct roads, construct or use tractor roads or landings in Class I, II, III or IV watercourses, in the WLPZ, marshes, wet meadows and other wet areas unless explained and justified in the THP and approved by the director except as follows:

- (1) At prepared tractor road crossings.
- (2) Crossings of Class III watercourses which are dry at time of timber operations.
- (3) At existing road crossings
- (4) At new tractor and road crossings approved by Department of Fish and Game.

#1. In-lieu – Item #27 (a) Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows: . . .

#2. In-lieu – Item #27 (f) Exclusion of heavy equipment from the WLPZ except as follows

Reference the in-lieu and location to the specific watercourse to which it will be applied:

- Item #27 (a) In-lieu location # 1 – Two proposed WLPZ landings are located where unit 336 borders the haul road at the bottom of the slope. The landings will be located within the WLPZ of Cherry Creek (class II watercourse). The use of the landings will include decking, loading, hauling, and skidding from associated skid trails. In-lieu location # 2 – This in-lieu proposes to use the road within the WLPZ of Blue Creek (class 1) within unit 162 for skidding purposes.
- Item #27 (f) Within unit 336 heavy equipment will operate within the proposed WLPZ landings and it's associated tractor road approaches, including the haul road, that have been used in previous harvest operations. This haul road is constructed well enough to facilitate minor skidding while also avoiding significant deleterious affects to the adjacent watercourse. Within unit 162 heavy equipment will operate within the WLPZ of Blue Creek on the haul road and skid trails upslope of the haul road.

Justification of in-lieu: In-lieu location #1 and In-lieu location #2 – If the use of the two existing landings within the WLPZ and skidding were not allowed, operations would require building new jump up landings and a new skid trail system adjacent to the WLPZ. 14 CCR 954.2 (c) states:

Tractor roads shall be limited in number and width to the minimum necessary for the removal of logs. When less damage to the resources specified in 14 CCR 954 will result, existing tractor roads shall be used instead of constructing new tractor roads.

The proposed In-lieu practices conform to that standard listed within 954.2 (c). Relocating the landing and skid trails would adversely affect soil productivity with organic matter loss, soil compaction, growing space loss, and may potentially make more material available for transport. The proposed In-lieu practice will provide for greater protection of the beneficial uses of water when compared to the alternative.

Use of the additional WLPZ landing adjacent to unit 336 (WL2) will shorten up the skidding length and log volume to any one landing ultimately reducing the potential for erosion and sediment concerns

Equal to the standard rule: This in-lieu practice proposes to use two existing WLPZ landings within unit 336 and skidding within units 336 & 162 because it will afford equal, or greater, protection to the adjacent WLPZ. The landing, skid trails, and associated haul road exists and are shaped well. The landings show no evidence of erosion or negative impact to the watercourse and are draining sufficiently. Building a new landing, and possibly multiple landings, outside of the WLPZ would affect additional areas by changing the existing skid trail and haul road pattern. The creation of a new landing and skid trail pattern directly outside of the WLPZ will potentially make more material available for transport, and at the same time, lessen the available vegetation for soil interception. Since the landing and it's associated skid system exist, no loss of vegetative cover will result from the construction of skid trails or landings.

The proposed practice will incorporate the following protection measures to provide additional protection to water resources.

In-lieu location # 1

- Upon completion of use, and outside of the winter period, the in lieu portion of the landing and skid trails shall have fine logging slash scattered on the surface or shall be seeded and mulched as per item #18 in the THP. The LTO shall be responsible for seeding and mulching.
- The existing landing shall not be increased towards the WLPZ/watercourse and material shall not be side cast from the landings.
- Use of this landing and Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.
- Skid trails to be utilized within the WLPZ, not including the haul roads, shall be flagged prior to the commencement of operations. Skidding within this zone shall be limited to the existing skid trails as flagged by the RPF.
- All tractor road use within the WLPZ shall occur during dry rainless periods where saturated soils do not exist and outside of the winter period designated as: "Winter period" means the period between November 15 and April 1.
- End lining of logs from the WLPZ to the haul road will be allowed. Where end lining occurs in the WLPZ; trenches created from skidding shall be slashed, mulched with native material, or hand waterbars shall be installed at 50-foot intervals. Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.
- If a landing slash pile is generated from timber operations at landing WL2, the pile shall have a berm established around it to prevent any ash from potentially migrating into the stream course.
- The inside ditch presently in place at landing WL2 shall be maintained after operations.
- To reduce the size of the potential landing pile, as much slash as possible shall be pushed back up the skid trail system.
- Only trees harvested from between the WLPZ road and Cherry Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the WLPZ.

In-lieu location # 2

- Only trees harvested from between the WLPZ road and Blue Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the WLPZ.
- End lining of logs from the WLPZ to the haul road will be allowed. Where end lining occurs in the WLPZ; trenches created from skidding shall be slashed, mulched with native material, or hand waterbars shall be installed at 50-foot intervals. Log skidding along the WLPZ truck haul road shall only occur during dry rainless periods where saturated soils do not exist outside of the winter period.
- All tractor road use within the WLPZ shall occur during dry rainless periods where saturated soils do not exist and outside of the winter period designated as: "Winter period" means the period between November 15 and April 1.

Item #30 & 31– Explanation and Justification of BMP Range of Acceptable Results

- **Hazard Reduction:** Burn piles shall each be greater than 80% consumed. Burn Piles that are not greater than 80% consumed by April 1 the following year of operation shall then be re-burned to achieve greater than 80% consumption before the end of that calendar year.
- **Slash Treatment:** Burn piles shall each be greater than 70% consumed. Burn Piles that are not greater than 70% consumed by April 1 the following year of operation shall then be re-burned to achieve greater than 70% consumption before the end of that calendar year. Piles may also be chipped or lopped and scattered.

The standard rule for the burning of piles for hazard reduction requires that they be burned prior to April 1st following their creation. In order to achieve acceptable air quality requirements, sufficient time must be allowed for material drying before ignition. Additionally sufficient time must be allowed for material drying to achieve a more efficient oxidation of organic material at a high temperature, thus resulting in a greater consumption of organic material. Material generated during the later portion of the operating season needs more time than that afforded by the standard rule. A late logging season combined with an early winter has frequently resulted in inadequately consumed hazard reduction piles and landing slash piles. Frequently this scenario has resulted in a complete inability to generate sufficient fire to ignite slash piles. Currently there are no mechanisms within the Forest Practice Rules that allow for an extension if slash pile consumption cannot be achieved within the allotted time frame.

Alternatively, the extension allowed within the BMP will result in an additional "FALL Season" to achieve fuel reduction and fire safe objectives if adequate slash pile consumption cannot be achieved. This extra window is only allowed if adequate slash pile consumption cannot be achieved. This extra window, if needed, will better allow sufficient time for drying and safe ignition, thus balancing air and fuel hazard resource needs while meeting the objective of reduced fuels and decreased fire intensity. These objectives are occasionally met with poor results while operating within the current forest practice rules.

CEQA Alternatives Considered

Sierra Pacific Industries (SPI) lands are privately owned, industrial timberland. SPI is primarily in the business of growing, harvesting, manufacture and sale of commercial forest products from managed private and public timberlands. The overwhelming majority of SPI's timberlands are zoned Timberland Production Zone (TPZ) and as such are intended to contribute to its business opportunities, while perpetuating the land in various forest seral stages to satisfy the increasing need for long term open space and productive wildlife habitat.

Preparation of this THP was conducted in a professional manner in conformance with SPI's long term management goals, the Timberland Productivity Act, 14 CCR 897 (implementation of Act Intent) and 898 (Feasibility Alternatives). A range of silvicultural and operational alternatives was considered throughout the preparation of this THP although these are in fact quite limited due to legal restraints. This THP is intended to satisfy SPI's goals while conforming to the Forest Practice Act (FPA) and Forest Practice Rules (FPR). SPI also operates under 3rd party certification as sustainable under the Sustainable Forestry Initiative (SFI). SFI places additional 3rd party oversight and additional market based incentives on SPI to continue to demonstrate long term sustainable growth in our forests. Therefore SPI has a direct economic bottom line interest to continue sustainable management.

Environmental pressure at the federal level has resulted in a sharp decline of historic federal timber supplies in California resulting in mill closures and a loss of jobs. This loss of federal supplies has placed an ever-increasing burden on private lands to support the public's lumber demands. While enjoying some of the most productive forests in the world, California is a gross importer of its wood fiber needs, importing nearly 80% of the resource from out of state or out of country suppliers. The landowner owns and operates several sawmills in the area and feels a strong responsibility for the livelihood of the mill workers and their families. This commitment is reflected in the non-declining flow constraint that SPI has adopted as part of its approved Option A demonstration of MSP.

Prior to submission, this THP was reviewed for compliance with the MSP Plan that insures long term sustained yield; and various provisions of the Forest Practices Act all of which minimize impacts. MSP plans must account for all constraints on productivity. The plan limits total harvest levels based upon individual watershed constraints. These various constraints included within the MSP model include those created by "consideration of other forest values, including but not limited to, recreation, watershed, wildlife, range and forage, fisheries... and aesthetic enjoyment." 14 CCR 913.11(a)(1), 933.11(a)(1), 953.11(a)(1). In SPI's MSP plans, these constraints include wildlife specific nest protections (14 CCR 913.2-3, 939.2-3, 953.2-3), roosting and foraging protections, and even dispersal protections under the cumulative impacts analysis (14 CCR 912.9, 932.9, 952.9). Also, specific FPRs, having the force of law, dictate future forest conditions. These rules include: rotation age constraints (14 CCR 913.1(a)(1), 933.1(a)(1), 953.1(a)(1)); adjacency constraints for clearcutting and other harvest (14 CCR 913.1(a)(4), 933.1(a)(4), 953.1(a)(4)); snag retention (14 CCR 919.1, 939.1, 953.1); stream side buffer zones (14 CCR 916.5, 936.5, 956.5); replanting requirements (14 CCR 913.5, 933.5, 953.5 and 912.7, 932.7, 952.7); and special old growth rules (14 CCR 919.16, 939.16, 953.16).

SPI also modeled non-declining harvest flow and balancing constraints to meet the "regional economic vitality and employment considerations" of the MSP plan. (14 CCR 913.11(a)(1), 933.11(a)(1), 953.11(a)(1).) The constraint of providing a non-declining flow in perpetuity prevents overcutting for short-term benefit (as that would not leave at least an equal amount of harvestable timber for the next decade), and assures that future forests will be standing and growing. Indirectly, the harvest limitation creates the environmental benefit for mature forest habitat that trees will tend to be larger at the time of harvest and overall mature forest habitat will become increasingly prevalent over the next 85 years when it will level out at volumes conducive

to that habitat type. California rules require species-specific analysis whenever there arises a potential for adverse environmental impact. (14 CCR 912.9, 932.9, 952.9.) All of these various rules and constraints were modeled in SPI's MSP plans and provide substantial protection to species that thrive in mature forest structure. The allowable harvest levels must make reasonable projections of all of the various environmental protection factors so that the total harvest levels and rotation cycles are very significantly limited by the MSP plan. For that reason, SPI can make intelligent forecasts about future forest conditions on its lands and can confidently predict, for example, that average tree diameter at harvest will increase from 18 to 32 inches, and that canopy cover and nesting habitat will increase. Forecasts are really modeled conditions based upon the forest practice management demonstrated in the MSP plan and legally ensured by all of the relevant rules.

One of the results of the application of the myriad of legal restraints tends to be the minimization of potential impacts from timber harvesting to a level of insignificance. In addition to these up front constraints, throughout the interdisciplinary review process this THP is further analyzed with the express goal of minimizing any remaining impacts to insignificance. Finally SPI participates in a certified Sustained Forestry Program that is independently audited in order to achieve certification of its products. Such certification has a value in the market place and hence there is an economic incentive to engage in sustainable forestry and comply with MSP the effects of which are described above. So the silviculture proposed for this THP has in fact been mitigated to a point where no significant adverse impacts are known to exist. It is against this backdrop that we endeavor to consider alternatives to the project as proposed, with all mitigation in place. CEQA's stated goal is considering alternatives that "describe a range of reasonable alternatives to the project, or to the location of the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, -and evaluate the comparative merits of the alternatives." See Title 14 CCR. Sec. 15126.6. If there are in fact no significant impacts, and the rules essentially fully mitigate timber operations, then a discussion of potential other methods of also achieving no significant impact is not a requirement of CEQA. To the extent that an alternative would minimize or limit future mature forest habitat more than would be accomplished under the proposed alternative it is difficult to see how any such alternative may be considered feasible.

SPI recognizes that a discussion of proposed alternatives is governed by a rule of reason under CEQA. Title 14 CCR Sec. 15126.6(f). In addition, SPI recognizes that what is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned. *Village of Laguna Beach, Inc. v. Board of Supervisors* (1982) 134 Cal.App.3d 1022. See also *Al Larson Boat Shop, Inc. v. Board of Harbor Commissioners* (1993) 18 Cal.App.4th 729.

An alternative is "feasible" only if it is capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, social and technological factors. *Laurel Heights Improvement Assn. v. Regents of University of California* (1993) 6 Cal.App.4th 1112; *Concerned Citizens of South Central L.A. v. Los Angeles Unified School District* (1994) 24 Cal.App.4th 826. Where there are only a limited number of feasible alternatives, no particular number of alternatives need be discussed. *Sequoiah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704. Where there are no feasible alternatives, infeasible alternatives may be discussed. *Whitman v. Board of Supervisors* (1979) 88 Cal.App.3d 397.

In addition to the alternatives considered below, SPI has considered during the preparation of this plan a complete array of potential silvicultural alternatives, that consideration and discussion is found in this THP under the heading of "Silvicultural Alternatives Considered".

With the above principles and concepts in mind, SPI now turns to a discussion of alternatives:

1) The Project as proposed: This THP encompasses SPI's management goals that it has defined for its timberlands. In addition, this THP incorporates all of the legal constraints described above. An integral part of any proposed harvest operation is to pro-actively improve the current timber, watershed and wildlife resources and reduce the fire danger within the plan area while allowing SPI, its employees and affected rural communities to realize an economic gain, and the human population the benefits of the most environmentally sound renewable resource currently available. This THP as proposed meets the objectives of SPI's Option A demonstration of MSP and therefore meets the above described goals as analyzed in that forest district wide document, developed to meet those goals.

A summary of the potential project as proposed is as follows:

CEQA Potential Significant Adverse Impact Checklist			
	Yes after mitigation (a)	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed		X	
2. Soil Productivity		X	
3. Biological			X
4. Recreation			X
5. Visual			X
6. Traffic			X

The project as proposed would meet all of the landowners' objectives. When approved this proposal would not cause any significant adverse impacts.

2) No Project: A no action alternative allows the present condition to develop by way of natural processes. Ramifications of this course include reduced stand vigor, increased stand mortality, unwanted and unnatural shift in species composition, and less diversity in wildlife habitat, as well as higher risk to catastrophic wildfire due to increased stocking and lack of treatment of historical fuel buildup. As explained in the silvicultural alternatives considered, this alternative fosters trends toward reduced wildlife habitat quality and further declines in forest health due to the lack of disturbance and habitat diversity that would occur under the proposed project alternative.

CEQA Potential Significant Adverse Impact Checklist			
	Yes - because there are no mitigations	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed	X		
2. Soil Productivity	X		
3. Biological	X		
4. Recreation	X		
5. Visual	X		
6. Traffic			X

The no project alternative would leave the project area to continue in its present state with none of the owners' objectives being met. Long-term impacts would be greater under this alternative therefore this alternative was rejected.

3) Alternative Land Uses: An "alternative use" as defined in 14 CCR 1100 is a use not compatible within a TPZ. Alternative land uses, including residential development, or commercial development would meet some of the landowners' objectives with regards to potentially creating an economic return from this use of the land. Impacts to the watershed could increase from road and building site compaction resulting in higher levels of surface runoff, and reductions in soil productivity from reduced growing space. Biological resources would suffer from construction

sites and human habitation encroaching on open space, recreation would be impacted as this type of proposed use usually prevents any recreational use of the land. Other visual resources may be impacted dependent on the type of development, as well as traffic flows both from increased traffic levels and delays from construction etc.

CEQA Potential Significant Adverse Impact Checklist			
	Yes after mitigation (a)	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed	X		
2. Soil Productivity	X		
3. Biological	X		
4. Recreation	X		
5. Visual		X	
6. Traffic	X		

SPI has no current plans to change the current zoning status of the plan area. This alternative would meet few of the owners' objectives and long-term impacts would be greater under this alternative, therefore this alternative was rejected.

4) Timing of Project: The proposed project will be completed within the next five years following approval, delaying the project beyond this point in time may still meet some of the landowners objectives, but would allow the project area to decline in health and vigor, lose potential harvest volume to mortality, allow understocked areas of less than optimal productivity to remain as such for an extended period of time, and reduce income levels when future returns are discounted back to present levels. Under SPI's Option A demonstration of MSP, all company owned lands are considered for their contribution to long term sustained yield and therefore changing the timing of this project would lead to lengthening the time it takes to reach the projected long term maximum sustained yield as projected in that document. Since delay in treatment would lead to some of the increased risks and concerns as identified in the no action alternative, this alternative increases the time and risk of achieving the better growth rates and habitat mixes as described in the Silvicultural Alternative section of this THP.

CEQA Potential Significant Adverse Impact Checklist			
	Yes - because there are no mitigations	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed	X		
2. Soil Productivity	X		
3. Biological	X		
4. Recreation	X		
5. Visual	X		
6. Traffic			X

The management of these lands under this THP document was determined to be the highest priority on SPI's ownership within the associated watershed. SPI wishes to commence operations on this plan at first opportunity to maximize stand health and vigor, rehabilitate understocked areas and capture mortality. This alternative would meet few of the owners' objectives and long-term impacts would be greater under this alternative; therefore this alternative was rejected.

5) Alternative Site: Other sites were considered by SPI and the lands under this THP were determined to be the highest priority for management on SPI's ownership. SPI wishes to commence operations on these lands at its first opportunity. Impacts expected if an alternative site was chosen would be the same as no project for this site. Under SPI's Option A

demonstration of MSP, all company owned lands are considered for their contribution to long term sustained yield and therefore changing the location of this project would potentially lead to lengthening the time it takes to reach the projected long term maximum sustained yield as projected in that document. Since delay in treatment of these stands could lead to some of the increased risks and concerns as identified in the no action alternative, this alternative increases the time and risk of achieving the better growth rates and habitat mixes as described in the Silvicultural Alternative section of this THP.

CEQA Potential Significant Adverse Impact Checklist			
	Yes - because there are no mitigations	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed	X		
2. Soil Productivity	X		
3. Biological	X		
4. Recreation	X		
5. Visual	X		
6. Traffic			X

None of the owners' objectives would be met if the Alternative Site option was selected and long term impacts would be greater under this alternative; therefore this alternative was rejected.

6) Public Acquisition: SPI is not currently a willing seller. Also, SPI does not intend to convey any easements, which would limit their management options. The impacts of this option are unknown because of the variation in potential uses, and activities that might be pursued under other ownership. SPI has demonstrated its willingness in the past to either trade or sell properties when their values for significant public purposes are identified. Sierra Pacific Industries Policy for "Forests of Exceptional Conservation Value" was developed to identify such lands. There is no current active program to sell properties associated with this plan or a willing buyer to acquire any of the parcels associated with this plan. Even with a change to public ownership, this would potentially be very similar to the no action alternative. Many of the potential impacts of that alternative would apply to this one. This alternative would meet few of the owners' objectives and long term impacts would be greater under this alternative, therefore this alternative was rejected.

Conclusion on Alternatives: Only Alternative #1 satisfies the wishes of the landowner and is compatible with the land use zoning category in which the majority of the property falls. Silvicultural prescriptions have been specifically designed by timber type to maximize individual tree growth while improving the overall health and productivity of the forest while providing for the long-term sustained yield of high quality forest products.

Alternatives 2,3,4,5 & 6 do not reflect the desires of the landowner and as a result of this analysis appear to have the potential to increase risk of and or directly increase potential adverse impacts. Therefore, these alternatives are rejected. For this reason, Alternative #1 is considered the preferred alternative.

Consideration of Feasible Silviculture Alternatives

The following analysis is an assessment of the early historical record depicting the pre-settlement condition of California forests, and the effects historical management practices, including fire management, have had on today's forest conditions. This assessment provides the background and reasoning leading to our choice of the mix of preferred silvicultural practices from the range of alternatives.

FACTORS CONSIDERED IN SILVICULTURAL DECISION

Changes to Forest Conditions from Pre-Settlement to the Present

To better assess and understand SPI's silvicultural decisions, it is necessary to recognize some changes that have occurred to our interior forests in California. Itemized below are several general forest characteristics relating to structure, composition and habitat condition. A summary of the trends and changes that have occurred is presented for each. Following that summary are supporting statements and citations from the scientific literature reviewed and cited.

- **Forest Density**

Forests in California have become denser over the last 100 years as a result mainly of fire suppression efforts; selective logging has increased this trend. This trend is likely to continue.

In the Sierra mixed conifer, pre-European forests probably consisted of a complex array of mostly small, even-aged aggregations and/or stands representing a wide range of age- and size-classes. Compared to today's forest conditions, stands would have been less dense and groups of different-sized trees would have been separated more horizontally into even-aged aggregations with less vertical diversity within groups (Weatherspoon et al 1992). To various degrees, the forest system has been changed from one dominated by large, old, widely spaced trees to one characterized by dense, fairly even-aged stands in which most of the larger trees are 80-100 years old. This forest appears to be unstable. Its trajectory into the future is largely unknown but stand structure can be expected to change markedly over the next 100 years (McKelvey and Johnston 1992).

In particular, it is believed that fire suppression and past logging practices have resulted in overly dense under-stories of the more shade-tolerant conifers, such as incense cedar, and the drought-susceptible white fir (Ferrell 1996). These overly dense stands are subject to extensive mortality from drought and insects, including the loss of the most desirable large, old trees (Weatherspoon et al 1992, Ferrell 1996). Mortality has been greatest in overly dense stands, especially those where past logging and/or fires-exclusion practices have promoted stand conditions susceptible to insects, pathogens, fire, and drought (Ferrell 1996). Because tree removal historically has targeted larger stems, and because these large trees appear to have been unevenly distributed on the landscape, forming groves, it is likely that their removal caused a decrease rather than an increase in landscape-level forest heterogeneity (McKelvey and Johnston 1992).

The patchwork of small, even-aged aggregations that characterized the mixed-conifer type before 1900 has become less distinct (Weatherspoon et al 1992). Changes at least partly attributable to fire suppression that are thought to have contributed to an increase in owl habitat include increased stand density, greater development of middle and lower canopy layers, more snags and more coarse woody debris (Weatherspoon et al, 1992). It is possible that these changes have led to a net improvement in spotted owl habitat (Weatherspoon et al 1992).

- **Species and Genetic Composition**

Forests in California have become increasingly composed of white fir and incense cedar while the ponderosa pine component has declined. Fire suppression and selective logging have contributed to this trend. Dysgenic effects from diameter cutting systems are likely. Selective logging is the primary cause of this trend, but fire suppression has also increased this effect. These trends are likely to continue.

The structure and composition of Sierra mixed-conifer forests have been affected profoundly by fire suppression policies, which begun in the early 1900s (Weatherspoon et al 1992). Comparing the estimates of tree species composition in 1913 to current estimates suggests that true fir and incense cedar have increased and that pines have decreased (McKelvey and Johnston 1992).

Historic and recent selective logging tends to favor shade-tolerant species such as firs and cedars at the expense of the more shade-intolerant and drought-resistant pines (Ferrell 1996).

On high site forest land in the central Sierra Nevada, forest inventories since 1957 show that in selectively cut areas, pine seedlings and saplings are fewer in number compared to the more shade tolerant white fir and incense-cedar. Also, the pine does not seem to be surviving well into the sapling stage (Olson and Helms 1996). Only the center portion of openings of .5 to 1.5 acres are large enough to allow adequate growth of shade intolerant pines. Shade tolerant species overwhelm pine in other areas of these small openings (Olson and Helms 1996). It is reasonable to infer that the proportion of fir has increased by perhaps 10-20 percent while the proportion of yellow and sugar pines has decreased by a similar amount. The trend toward the more shade-tolerant fir will be enhanced by selective removal of trees, by fire suppression and by maintenance of the very dense stand conditions that exist in many areas of the Sierra Nevada today (McKelvey and Johnston 1992).

The changes in forest conditions described for Ponderosa pine and mixed conifer forest types have occurred to a lesser degree in the true fir forest types (McKelvey and Johnston 1992). This complex fire regime, along with other agents of disturbance, produced a variable, irregular patchwork of even-aged groups, most from less than an acre to several acres in size. Openings created by fires and other disturbances provided conditions favorable for regeneration and growth of shade-intolerant trees and plants, including ponderosa pine, and California black oak (Weatherspoon et al 1992). Maynard, Overton, and Johnson (1987) characterize diameter-limit cutting as follows: "In terms of genetic consequences, diameter-limit cutting is like destroying the 1st, 2nd, and 3rd place finishers in every horse race, and putting the last place finishers out to stud!" (Howe, 1989). If uneven-aged management were ever to successfully be practiced wholesale over large areas for long periods of time, it has the potential for quickly liquidating pioneer and early seral species (Zobel and Talbert, 1984). Uneven-aged management of this sort would be inconsistent with the ecology of virtually all temperate forests, which recycle periodically, primarily by fire (Howe, 1989).

- **Large Trees**

The forests of California have had a decrease in the distribution of large trees across the landscape and this trend is likely to continue.

The average yellow pine was reportedly 150 to 180 feet tall and 3 to 4 feet in diameter at breast height (McKelvey and Johnston 1992). Large, old trees appear to have been characteristic of many forested areas. However, this certainly does not imply that varying sized patches of shrubs or younger trees were not present in the landscape. Variation in tree size and species composition was likely to be greater horizontally (across the landscape) than vertically (within a single stand) (Skinner and Chang 1996). The western pine beetle kills mainly mature pines weakened by root disease, dwarf mistletoe, or drought (Ferrell 1996).

- **Fire Intensity**

Forests in California have become more susceptible to high intensity stand destroying catastrophic wildfire and this trend is likely to continue.

Prior to European settlement in the mid-1800's, Sierra mixed-conifer forests were characterized by a short-interval, low- to moderate-severity fire regime. As a result of human activities since the mid-1800's, the fire regime has been changed to one of less frequent but substantially more severe fires (Weatherspoon et al 1992). Frequent fires in the mixed-conifer type maintained surface fuels at fairly low levels, and kept the under-story relatively free of trees and other vegetation that could form fuel ladders to carry surface fires in to main canopy (Weatherspoon et al 1992). Although high severity crown fires usually could not be sustained over large areas, they affected small areas (ranging in size from a single tree to at least several acres) and probably

were relatively common and an important influence on stand structure (Weatherspoon et al 1992).

Success in excluding fire from large areas that were once regulated by frequent low-to moderate-severity fires has simply shifted the fire regime to one of long-interval, high-severity, stand-replacing fires (Weatherspoon et al 1992). In recent years, large fires have become less controllable and more severe; evidently reflecting in part increased fuel loading (Weatherspoon and Skinner 1996). Fuel conditions in much of the Sierra Nevada support the potential for large fires exhibiting extreme fire behavior with likely undesirable effects (Sapsis et al 1996).

- **Early Seral**

The forests of California have seen a decrease in early seral components. Except for areas burned in large catastrophic wildfire, this trend is likely to continue.

Forest openings have disappeared or become smaller in a remote study area of the Klamath Mountains during the period of effective fire suppression (Skinner 1995). Stressed pines are usually killed singly or in small clumps during non-drought periods but during droughts both mature and pole-sized pines may be killed in large groups and the openings thus created support establishment and growth of shade-intolerant plants and trees (Ferrell 1996).

- **Open Forest**

The extent of open, well-spaced forests in California has declined, and this trend is likely to continue.

The earliest and best known descriptions of the mixed conifer forest were written by John Muir, who described the "inviting openness of the Sierra woods" and noted that their "park-like" condition enables one to have "little difficulty in riding on horseback through successive belts" to the peaks (Helms and Tappeiner 1996). It appears that many forested areas were generally more open than they are today, due mostly to the frequency of fires (Skinner and Chang 1996).

- **Small and Medium Sized Trees**

Forests in California are now composed of smaller stems at greater density and this trend is likely to continue.

Conifer stands have become denser, mainly in small and medium size classes of shade-tolerant tree species. Stands have become more complex when viewed vertically, but less complex and more homogeneous in terms of areas arrangement. "Selective" cutting of large over-story trees has probably reinforced these trends (Weatherspoon 1996). As frequent fires of low to moderate severity ceased to be a dominant ecological force, shade-tolerant and fire-sensitive tree species (especially white fir) increased dramatically in abundance, particularly in small to medium size classes. Multiple-canopied stands consisting largely of these shade-tolerant species are now common. Regeneration of pines, black oak and other shade-intolerant species has declined except in areas opened by wildfires or management activities (Weatherspoon et al 1992). The pine engraver beetle kills mainly pole-size pines in overly dense stands, especially during droughts (Ferrell 1996). Trees in smaller size classes were uncommon, though patches of very small regeneration were present (McKelvey and Johnston 1992).

- **Forest Stand Structural Elements**

Snags of all sizes and large woody debris on forest floors have increased and, except for catastrophic wildfire, this trend is likely to continue. In the future, the increasingly dense forest will no longer grow large trees at a rate that ensures the potential supply of large snags and large

woody debris. The regular disturbance caused by repeated unevenaged harvest entry can increase the small hardwood component of stands. Yet, like conifers, such harvest does not provide the growing environment suitable to produce large hardwood trees. These trends are the results of fire suppression and selective logging and are likely to continue.

Continual suppression of the fires in many of these forests has probably increased coarse woody debris accumulations above that in pre-suppression-era forest (Skinner and Chang 1996). There has also been an increase in the accumulation of downed logs and snags in these forests as a result of the increased mortality from recent, severe fires, from insects and from stressed overcrowded pine stands. As a consequence, large high-severity fires, once rare, have become commonplace in recent years, as have many small, high intensity fires (Chang 1996). With fire suppression, fuels on the forest floor (including coarse woody debris) have accumulated far beyond their normal levels (Weatherspoon et al 1992). More snags and large woody fuels are likely to increase fire spotting and suppression difficulty (Weatherspoon et al 1992).

The increased mortality due to stress has also added greatly to fuel loads. The increase in snags and large woody fuels is likely to increase fire spotting and make fires harder to suppress (Chang 1996).

It seems likely that on xeric sites relatively few downed logs reached advanced stages of decay before being consumed by fire (Weatherspoon and Skinner 1996). Many high quality mature forest stands in the Sierra Nevada have low to moderate over-story tree densities, moderate canopy cover, and openings of sufficient size for successful reproduction of the relatively shade-intolerant pioneers, such as pines and a variety of brush species (Franklin and Fites-Kaufmann, 1996). Wildfires of light to moderate intensity and moderate to high frequency have been important in creating and maintaining this structure.

In mature forest stands, the hardwoods are decadent and dying, with little regeneration to provide replacement trees (McDonald and Tappeiner 1996). The four major hardwood species in the Sierra Nevada are well adapted to take advantage to changes in the environment. These species are able to respond more quickly and effectively to disturbances than their conifer associates (McDonald and Tappeiner 1996). Sierra Nevada hardwoods do not grow as tall as their conifer associates causing the hardwoods to be shaded out and eliminated over time without additional disturbance (McDonald and Tappeiner 1996).

• **Wildlife Species Response to Habitat Changes Over Time**

Despite the past 200 years of human manipulation of California's forests, most wildlife species seem to have adapted to these changing conditions. Given the reduction of early seral and open forest conditions, wildlife associated with these habitats may not be able to continue to adapt in the future.

Compared to the more intensively developed regions of California, the terrestrial vertebrate fauna of the Sierra Nevada is relatively intact (Graber 1996). Only three vertebrate species are known to have been lost from the Sierra fauna in historic times, the California grizzly bear, the Bell's vireo and the California condor (Graber 1996). All of these species require forest openings for all or part of their habitat needs (SPI - CWHR 1999). Biological communities and structural elements that were present in aboriginal times have persisted, although some floristic components, size and spatial distribution of each habitat component may be different to varying degrees (Graber 1996). The most important factor in population viability for nearly all species has been and continues to be habitat quantity and quality (Graber 1996).

The North American Breeding Bird Survey provides the most useful data regarding Sierra vertebrate species status and trend (Graber 1996). Twenty-six years of data from the Breeding Bird Survey suggest that 29 land-bird species may be declining in population. Sixty five percent of these species are associated with early seral or open forest habitats, while twenty seven

percent are associated with dense forest habitats. (SPI - CWHR 1999). The principal predictor of the presence of a particular vertebrate is appropriate habitat. Wildlife habitats are largely equivalent to vegetation types or biological communities but may also require the presence of abiotic elements such as cliffs, caves, lakes and streams or sandy soils (Graber 1996). Most wildlife species also make significant use of biotic structural elements for important life functions: shrubs or trees at a particular seral state, size or density; snags; logs; and hardwoods (Graber 1996).

The amount and distribution of these abiotic and biotic structural elements often control population levels of wildlife species (SPI – CWHR 1999). Fire suppression in the Sierra Nevada has led to forest and chaparral stand conditions inimical to many Sierra land-birds because of loss of habitat elements, including forest openings with herbs and shrubs (Graber 1996). The high fuel loading resulting from fire suppression can lead to large, stand-destroying fires that eliminate large, old trees, snags and logs (Graber 1996). Of 246 wildlife and fish species that commonly utilize forested habitats in California, 29% are associated with early seral habitats, 14% are associated with dense, small tree forests, 22% are associated with open forests, 14% are associated with dense, large tree forests, 6% are associated with abiotic elements such as cliffs and caves, and 14% are associated with water and riparian habitats (SPI - CWHR 1999). Of 246 wildlife and fish species that commonly utilize forested habitats in California, 80 are associated with snags, 78 are associated with logs, 158 are associated with grass and shrub edges and/or layers, and 75 are associated with mast producing hardwoods (SPI - CWHR 1999). Absent non-habitat factors (trapping, poisoning, competition or predation from introduced species, etc.), the changes in habitat caused by fire suppression and forest management activities are likely to have caused the following trends in populations of wildlife species (SPI - CWHR 1999):

- cold water associates – stable trend
- early seral associates – stable to declining trend
- open forest associates – stable to declining trend
- dense small tree associates – stable to increasing trend
- dense large tree associates – stable to declining trend
- snag associates – stable to increasing trend
- log associates – stable to increasing trend
- edge and layer associates – stable to declining trend
- hardwood associates – stable to declining trend

• **Management Considerations**

These considerations are part of the overall decision process that leads to our discussion and conclusions presented below.

Providing a sufficient amount and distribution of mature forests and providing a sufficient quantity and distribution of snags and other dead wood in forests of all ages with all degrees of canopy cover and tree densities, appear to be crucial for the continued existence of an intact and healthy Sierran forest avifauna (Graber 1996). There are also species that prefer open stands or forest openings. These open stands and openings would have occurred in many places due to past fire regimes and could be created with appropriate forestry practices today (Graber 1996). In general, conditions need to be moved away from dense, small-tree-dominated forests toward more open, large-tree-dominated forest (Weatherspoon and Skinner 1996). Any landscape-level needs for large, even-aged stands are likely to be met by severe wildfires and subsequent plantation establishment for the foreseeable future (Weatherspoon 1996).

Natural even-aged stands originate mostly from high-severity fires that kill the great majority of trees in the stand. In pre-European fire regimes, high-severity fires occurred most often in moist sites or sites dominated by white fir. Even-aged stands resulting from even-aged silvicultural systems and from infrequent severe fires may be similar in terms of the general structure and

Earlier foresters did not have the benefit of data sets and fire suppression effects research to guide their decisions. They found a mostly open pine forest and harvested it. They protected it from wildfire and the typical result was a well-stocked forest, dominated by pine with high growth rates. In many instances they employed so-called "selective harvest" methods, taking only the largest dominant trees. As new generations of foresters were hired and trained in these selective harvest methods, what they did not realize was that, as this effort continued, they were no longer starting with the same forest dominated by large-tree and open spacing.

Taking into consideration forest practice stocking rules, tree species composition, higher canopy closures and stem density, they could no longer expect successful regeneration of shade intolerant species nor achieve growth rates that would allow continued harvesting at sustainable

• Results from Past Harvesting and Fire Suppression

In light of these trends (in habitats and structural components) from past logging and fire suppression, the following discussion will provide the general background information that guides the primary choice of landowners: to use either evenaged or unevenaged regeneration systems.

The trends in habitats or structural components (habitat elements) presented should not be considered as long-term significant adverse effects on species or forests, but should be viewed as potentially significant if negative trends are not arrested or reversed.

• Discussion and Conclusions

In general, computer simulations indicate that average volume increment from properly implemented even-age management techniques will equal or exceed other management styles. Growth in diameter and height of trees planted in Blodgett Forest outperform expected growth rates for unmanaged ponderosa pine plantations (Olson and Helms 1996).

Repetition of logging of stands by selective methods can lead to increased levels of root disease by repeatedly providing trunk or root wounds which are infection sites for root pathogens. Done properly, intensive even-aged management should mitigate most of these problems (Ferrell 1996). If present trends and management practices continue, Sierra Nevada forests will experience outbreaks of bark beetles and wildfires in response to the recurrent droughts characteristic of the California climate. It is likely that the high levels of forest damage caused by these agents will increase in the future over much of the Sierra Nevada (Ferrell 1996).

Mortality of remnant old-growth trees will increase due to their age-related higher susceptibility to insects and pathogens (Ferrell 1996). If management strategies are altered in the direction of restoring pre-settlement forest composition and structure, current forest conditions, including damage from insects and pathogens, would probably be mitigated (Ferrell 1996). Silvicultural techniques are needed in addition to or in lieu of fire in many areas to move conditions away from dense forests dominated by small trees and containing excessive fuels toward more open forests dominated by large trees (Weatherhead 1996). All forest management activities must be done carefully as with every entry into a stand there is a risk of injuring the residual trees. In particular, scorching and mechanical injury to remaining trees should be minimized. Appropriate equipment and methods should be used to minimize soil compaction and root damage (Ferrell 1996). After 40 years of plantation growth, tree size was dramatically affected by stand density. In low-density stands, tree diameters averaged 21.2 inches in dbh and live crown ratios average 70%. Values were 13.5 inches and 54%, respectively, in the high-density stands (Oliver et al 1996). Tree size and vigor increase as stand density decreases (Oliver et al 1996). Sierra Nevada hardwood species grow best in stands with total crown densities of 40-60 percent and total basal areas between 100-125 square feet (McDonald and Tappiner 1996).

arrangement of live trees (Weatherhead 1996). Maintaining open forest conditions provides for reduced fuels and damage from fire, increased tree size, and opportunities for under-story vegetation layers (Oliver et al 1996).

levels. Tree growth in these more shady conditions was no longer keeping up with planned harvest rates, as they had in the past.

Earlier foresters and landowners also were encouraged by both State tax laws and the Forest Practice Act to continue individual tree selection harvesting. Under California tax code ad valorem taxes (annual full value land taxes) – pre 1976, Section 12¾ of Article XIII of the California Constitution encouraged 70% removal of the volume and retention of less than 18" trees. The incentive provided was that the remaining timber value was removed from the tax rolls for 40 years after such a harvest.

- **Information Based Decisions**

SPI has collected data across our property using a systematic grid of plots. This data provides some of the basis for SPI's demonstration of achievement of maximum sustained production filed pursuant to 913.11(a), [933.11(a), 953.11(a)]. Included in this data set is a comprehensive set of radial core measurements. Conifers grow radially and each summer produce denser and darker cells which appears in cross section as a ring. This radial core measurement allows us to assess individual tree growth rates. We now have over 346,000 individual trees from throughout our land that have been measured this way. This investment in data collection has allowed SPI to assess the effects of past silviculture in ways that were not available to previous landowners nor the foresters who prescribed past management decisions.

The company-wide average radial core data for the 8 inch diameter breast height (dbh) tree and the same data for the average harvested tree (approximately 22 inches (dbh)) are based upon over 13,000 random samples in each diameter class. The average 8 inch tree is growing 17.7 rings per radial inch while the average 22 inch tree is growing 11.7 rings per inch. Such trees growing at the combined average of 14.7 rings (or years) per radial inch under current selective management, will take 103 years to grow from 8" to 22" (current average crop tree size). At the same time, if removed and regenerated under an evenaged regeneration system, a seedling can easily grow to 22 inches in 55 years and to 32 inches dbh under SPI's estimated 80-year average rotation. Thus, we could not only grow a 22" tree in far less time, we can grow an even larger diameter tree decades before the existing 8" tree reaches 22". It is clear that we could grow a forest stand of larger trees, faster, by clearing and planting. This would allow us to reverse trends in early seral composition and extend early seral characteristics further into the life of a stand. This would also produce a larger average tree and more open habitat for wildlife in much less time. Clearing and planting also provides us an opportunity to treat surface fuels and reduce fire risk. Stocking control and pruning further reduces fuel buildup and distribution.

Our system of even aged management does not ignore many other special element needs in our forest. Snags for example, are provided for specifically in SPI's "Habitat Management Guidelines for Cavity-Using Species on Sierra Pacific Industries Land". These special elements are discussed in other sections of this THP.

This information helps guide the primary choice of silvicultural regeneration method across the ownership, but as is always the case, site specific conditions must be analyzed in relation to other forest values. The specific mix of evenaged and unevenaged silviculture presented in this THP is consistent with the estimates of silvicultural systems presented in SPI's Option A for this forest district. Company-wide, this THP combines with others to produce a change over time from a current per acre average growth rate of 379 bd.ft. to an estimated average growth rate of 980 bd.ft/ac.

The most profound effect of our management is an increase in the average tree diameter over time. Today, for example, the average diameter of a harvested tree on SPI lands in the Sierra Nevada is 22" at breast height. In 100 years, using our planned silviculture, the average tree at harvest will be 32" to 34" dbh. This also means that we will have much more land with 22 to 34

inch size class trees. In the future, the 22" diameter trees will be left – not harvested until they reach 32-34 inches. Data contained in SPI's Option A for each Forest District demonstrate that volume for all diameter classes greater than 18" dbh increases each decade for the projected next 100 years.

Our goal to increase tree size and timber volume per acre over time will also enhance some other forest values. For example, our management will provide opportunities for natural processes to produce large snags and better wildlife conditions over time. In addition, other forest values to benefit include, but are not limited to; recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment. SPI estimates in our Option A document that 32% of our overall productivity is foregone to provide those other forest values.

Evenaged regeneration systems reduce the number of times heavy equipment is utilized on any site, -- this lowers the potential for soil compaction, and residual stand damage, thus reducing the risks of introduced disease and growth-reducing disturbances.

In conclusion, SPI's responsibility to meet the laws of California, combined with our goals as a primary wood products producer, leads us to choose evenaged regeneration systems wherever possible. This is achieved while providing consideration for other forest values. This decision comes with our understanding that it requires a significant re-investment in planting and future stand cultural treatments. At current costs ("2000" dollars), these investments are estimated to be in excess of over \$600 per acre. The alternative choice of unevenaged regeneration comes with no reinvestment requirement, but continues the potentially negative trends discussed above. The silviculture presented in this THP, while still a mix of both regeneration systems, is our best effort to begin to reverse these negative trends. In doing so, our current practices if projected over the long term will convert inferior forests characterized by small trees and slow growth into forests characterized by significantly larger trees and much more vigorous growth. We can recreate forests populated by large, healthy trees.

While the discussion of potential effects of many decades in the future show positive trends it is important to note that these trends and changes in the forest structure depend upon the continued implementation of a series of potential and speculative future projects, which are clearly not proposed by this plan. SPI forest management produces habitat conditions that will continue to provide for the needs of the Pacific fisher and California Spotted Owl. At such time as these potential future projects are proposed SPI will and must per the Forest Practices Act and Rules once again conduct a cumulative impact analysis and modify and change those projects to respond to conditions at that time.

Water Drafting:

Spur 3 Waterhole – This waterhole is located in section 26 and within unit 351. At this location the waterhole is within the channel or headwaters of a class II watercourse. The drafting pad is rocked and a brow log is utilized. The drafting hole is approximately 20 feet wide by 30 feet long and exhibits an unknown depth that is likely less than 10 feet.

Cherry Creek Waterhole – This waterhole is located in section 22 and downstream from unit 336. At this location the waterhole is within the channel of a class II watercourse. The drafting pad is rocked and a brow log is utilized. The drafting hole is approximately 14 feet wide by 16 feet long and exhibits a depth of approximately 6 feet.

Spur 4 Waterhole – This waterhole is located in section 14 and is west of unit 365 along the Spur 4 haul road. At this location the waterhole is within the channel of a class II watercourse. The drafting pad is rocked and a brow log is utilized. The drafting hole is approximately 12 feet wide by 14 feet long and exhibits a depth of approximately 5 feet.

SECTION IV

CUMULATIVE IMPACTS ASSESSMENT – SQUIGGLY

Introduction to Cumulative Impacts

Assessment Area Size Discussion

The following information is provided to clarify the choice of assessment area. SPI owns or has management responsibility on approximately 1.65 million acres within California. These lands should be viewed in context and represent 4.1% of California's 40 million acre forested landscape.

SPIs' land lies in many planning watersheds within portions of hydrologic units defined by the state of California. The total area of the hydrologic basins containing our lands is approximately 26.7 million acres. SPIs' total acreage represents 6.1% of the whole of these planning watersheds. SPIs' ownership can be further localized, since over 1.2 million acres is primarily in the Sierra Nevada and Modoc Plateau region of California. There are over 15.4 million acres in hydrologic basins within the Sierra Nevada Modoc Plateau region. SPIs' acreage within that region represents 7.8% of the whole. The remaining 400,000 acres of SPIs' ownership lies in the region described as the Coast-Klamath-Cascade. There are over 11.3 million acres in total hydrologic basins within the Coast-Klamath-Cascade region. SPIs' acreage within that region represents 3.5%.

Since SPI primarily manages commercial forestlands, our ownership must also be put into perspective relative to the area of total forestland and commercial forestlands in California. There are approximately 19 million acres of commercial forestland in California; SPIs' total acreage represents 8.4%. Focusing on all counties in which SPI manages forestland (within California), there are 20.1 million acres of forestland, SPIs' acreage represents 8.0%. Focusing only on commercial forestlands within these same counties there are approximately 12.2 million acres, SPIs' total acreage represents 13%.

These percentages represent SPIs' total current land base. The annual acreage of projects (THPs) proposed to be harvested is a small fraction of SPI's land. Use of a large assessment area, like the Sierra Nevada Modoc Plateau region could serve to dilute any impacts estimated to insignificance.

On the other hand, if the assessment area were too small, (say one acre), minor impacts could be viewed as long-term, significant adverse impacts; until they are viewed in a proper scale one cannot tell if they are truly significant. It is in this context that we continue to carefully choose the assessment areas for each THP.

SPI's harvest planning mitigates potential long-term significant adverse effects to wildlife habitats at the scale of each watershed. Therefore, larger assessment areas containing SPI land would also meet our wildlife habitat goals, since we meet these goals at each of the subparts, the planning watersheds.

To assess the potential cumulative effects on wildlife that may have a current range large enough to extend beyond the Cal Planning Watershed, SPI offers the following discussion and analysis.

To place this plan and future harvesting in perspective we describe the environmental setting and place our ownership and our average annual harvesting with reference to the size of the Sierra Nevada Region. (South of the Pit River) (See Figure 1 on next page for a graphic depiction).

By far the largest landowner in the Sierra Nevada region is the federal government, controlling the overwhelming preponderance of the land area. In keeping with its legal mandate, the federal government has undertaken large scale planning efforts designed to maintain viable populations of all of the various species including those which are thought to be dependant upon certain forest elements usually associated with more mature forest types. These Sierra wide plans offer a frame of reference for considering Sierra wide impacts of SPI's present and reasonably foreseeable future harvesting.

The USFS manages the federal land under a variety of different federal laws, including the Organic Act, the Multiple Use Sustained Yield Act, the National Forest Management Act and their adopted implementing regulations. As it relates to those species that are not listed under the Endangered Species Act (which includes the California spotted owl and Pacific fisher) the USFS currently manages these other species under implementing regulations that set the goals of maintaining the viability of each species over each species historic range.

The Federal government has interpreted these viability goals as controlling and has overridden most of the other forest management goals, including meeting sustainable non-declining flows of timber to meet the nation's needs for wood products. In this context the USFS planning documents are reviewed by other federal jurisdictional agencies including the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. The USFWS provides its oversight with respect to maintaining viable wildlife populations in the form of various consultation and biological opinion documents.

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Sierra Pacific Industries - Cumulative Effects Scaling Analysis

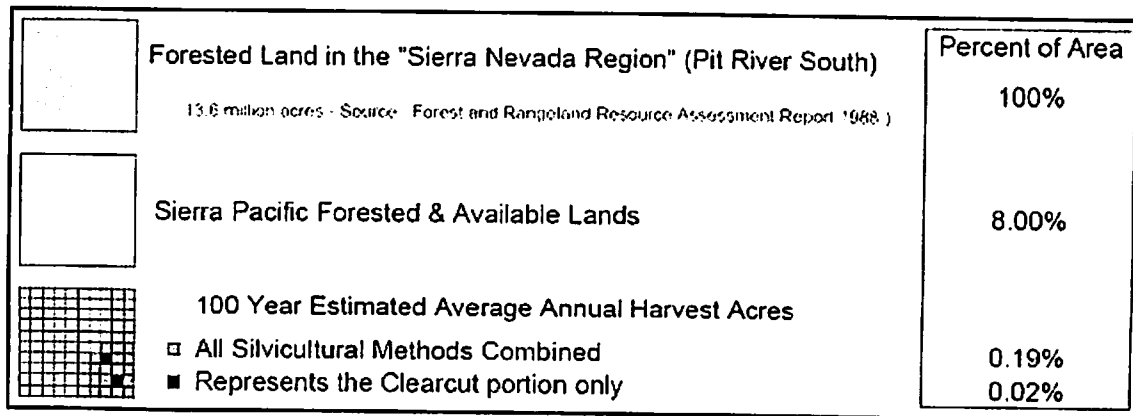
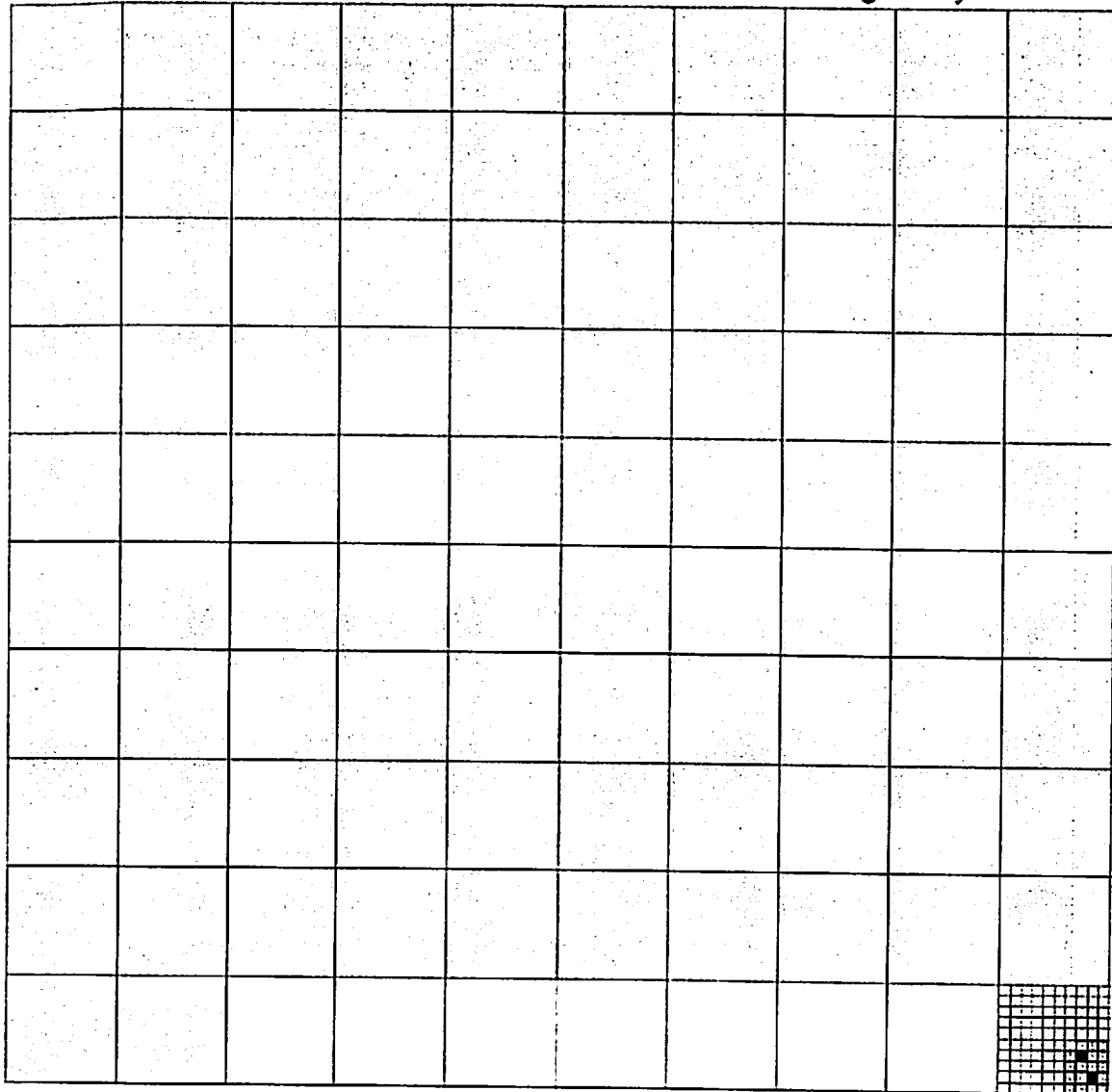


FIGURE 1

A note about the diagram, each large square represents 1% of the "Sierra Nevada Region", greater detail in the corner allows each smaller division to represent 1/100th of 1%. All harvesting was shown as occurring in one small location for ease of viewing, actual SPI annual harvest depicted would be spread throughout the entire SPI land base. That SPI land base is also distributed through out the northern 2/3 of the analysis area. The total silviculture of SPI as a percentage of the Sierra Nevada forestlands reads as approximately 19 hundredths of one percent annually. The total clearcut silviculture of SPI as a percentage of the Sierra Nevada forestlands reads as 2 hundredths of one percent annually. (The black grid cell lines used to help identify the 1/100ths of one percent actually cover as much of the representative area as the SPI annual clearcut silviculture acreage.)

SPI as a private land owner in California manages its land for goals and objectives different than those of federal land managers. While SPI operates under the statutory requirements of the ESA, its projects must be implemented under the California Environmental Quality Act (CEQA), the California Endangered Species Act and the state Forest Practices Act. In this respect, SPI does not take species listed under Federal and State endangered species act and mitigates environmental impacts as required by CEQA, and the rules of the Board of Forestry. Pursuant to these statutory mandates care is taken to prevent significant long-term adverse effects to the environment, including significant effects to non-listed species. SPI must also demonstrate achievement of maximum sustained production of timber products as defined in the state Forest Practice Act.

For many of the same reasons that private landowners could not produce detailed project level assessments at the scale of the Sierra Nevada, the USFS analysis simply assumes that private lands will make little or no contribution to their landscape habitat goals. In essence, the Federal Government assumes that sufficient habitat to provide for all wildlife species must be adequately maintained on federal lands without resort to private lands, and formulates its plans accordingly. For that reason, the USFS usually takes very conservative approaches to management decisions or planning constraints that it proposes and applies when implementing a project. The current guiding document for their lands in the Sierra Nevada is called the Sierra Nevada Framework (USDA 2001, USDA 2004). The document reviews the status of the California Spotted Owl and proposes safeguards for maintaining a viable population of this species. This document was reviewed by the USFWS in its biological opinion and was determined to be in compliance with the ESA (USDI 2001, USDI 2003, USDI 2006).

The government studies cited in the USFS Framework and USFWS opinion tend to focus on the presence of mature forest habitat or characteristics normally associated with that habitat, chief among them being the presence of large trees in a stand conducive to spotted owl nesting and roosting. Implicit in the government's analysis is the apparent presumption that the constraining factor on owl populations is the presence of appropriate large tree nesting habitat. We have set forth the data in our discussion (*infra*) that owl nests are in fact found on private lands with 2/3 of known nest trees on SPI's land having the diameter range from 20" to 48", with average diameters of 34 inches. Additionally we have demonstrated that there are large snags and larger trees spread across the landscape preserved in streamside protection zones that will not be harvested. The most recent studies of Northern Spotted Owls (genetically very similar to California Spotted Owls, and whose prey and habitat uses are also very similar) demonstrate that forest edge habitat for the prey base is an integral component in spotted owl habitat (Meyer et al. 1998, Franklin et al. 2000, Zabel et al. 2003, Olsen et al. 2004). This is especially relevant in low to mid elevation, hardwood, hardwood conifer mixed, and pine / mixed conifer forest types. If there is adequate nesting habitat then food becomes the constraining influence on owl success. Harvesting creates edge that in turn causes the development of habitat types known to produce prey.

Because SPI's land contains adequate nesting and roosting habitat, and through management necessary prey producing "edge" habitat, SPI provides habitat for owls. Additionally, good silviculture practiced over time will increase the average tree diameter on SPI land from 17 inches to 32 inches. So that if we assume that more stands with large trees are better for owls, forest management on private timber lands will improve owl habitat. As explained in the alternative silviculture section of this THP (given the current condition of SPI forests after years of selective logging) cutting and re-growing trees will have the end effect of increasing average tree diameter. But the more important consideration is that enough nest sites already exist and will continue to exist so that increased edge will increase prey, which is expected to improve or maintain owl density. In addition, given that spotted owls can disperse through a wide range of forested landscapes, including highly fragmented landscapes, continued management in this manner will insure that diverse forest landscapes continue to exist on SPI land, allowing dispersal by juvenile and adult spotted owls to successfully occur (Forsman et al. 2002). Therefore, active silviculture is expected to enhance owl habitat across the Sierras. According to government projections viable populations will persist without benefit from private lands and hence we anticipate only a potential positive effect from SPI's activities when analyzed on landscape or a Sierra wide basis.

In the biological opinion from the USFWS and in the Framework decision it is assumed that private land will not contribute to long term habitat for the California spotted owl. (USDI, 2001, USDI(A) 2003, USDA 2001, USDA 2004, USDI 2003) As can be clearly seen in the California spotted owl discussion in this THP, SPI not only contributes to the habitat, but improves the habitat through its management practices. This is acknowledged in the USFWS decisions not list the California spotted owl (USDI 2003, USDI 2006). We believe the current research supports our conclusion that we will improve habitats for the California spotted owl. This is presented in this THP under the California spotted owl and our consideration of feasible silviculture alternatives discussion. Because we are doing significantly more to create and preserve habitat than is contemplated in the Federal Documents we conclude that at the scale of the Sierra Nevada and in context with all available federal plans, that our THP, taken together with all of our reasonably foreseeable future THPs, is not likely to have a long term significant adverse effect on the California spotted owl.

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While at this large scale, we are persuaded that there are no adverse impacts, we will continue our analysis at the local THP planning watershed scale. Below we begin this analysis by describing the large tree dense forest habitats found on SPI lands and how we used data from a number of species to describe and define such habitats.

Wildlife Species Associated with Large Tree Dense Forest Habitats Found on SPI land in California (Life Form 4)

The Large Tree Dense Forest stand condition (Life form 4) is used by a number of wildlife species, such as the politically controversial northern spotted owl and Pacific fisher, which desire relatively dense forests with a significant number of large trees for reproductive and/or feeding activities. In defining this Life form, the question arises as to how to define "large tree." This was best answered by observing the habitat use of these species to ascertain their tree-size preferences and then labeling tree sizes accordingly—an approach that allows the species to determine biologically significant tree sizes, which can then be used to define the Large Tree Dense Forest Life Form.

Determining Tree-Size Preferences of Wildlife Species in Life form 4

From 1990 to 2007, plots were read at sites frequented by wildlife species typically associated with Life form 4 stands, and data were collected within 115 ft. of the nest, den, maternity, or rest structures (trees, snags) used by individual animals. All sites occurred in managed forest habitats, and all sites occurred on or immediately adjacent to SPI land (Table 1).

Table 1 Number of Nest and Rest Sites Used by Species of Interest in Life Form 4 Analysis

Species	Type of Site	No. of Sites
Northern spotted owl	Nest Sites	19
California spotted owl	Nest sites	30
American Marten	Male and Female Rest and Den Sites	165
Pacific Fisher	Female Den and Rest Sites	87
Pacific Fisher	Male Rest Sites	34
Northern Goshawk	Nest Sites	26
Silver-Haired Bat	Colonial Maternity Roosts	8
Total Number of Sites		369

Data regarding the size of trees at each site were evaluated for each species listed in Table 1. The parameters used to characterize each site and the results from the plot data are listed in Table 2 and include:

- dbh of the rest/nest/den structure
- quadratic mean diameter of the trees (except the structure itself) within 115 ft. of the rest/nest/den structure
- percent of sites that did not have any trees greater than or equal to various size trees, as measured by dbh.

Table 2. Selected Habitat Parameters Associated with Nest, Den, Maternity, and Rest Sites of Species Associated with the Large Tree Dense Forest Life Form

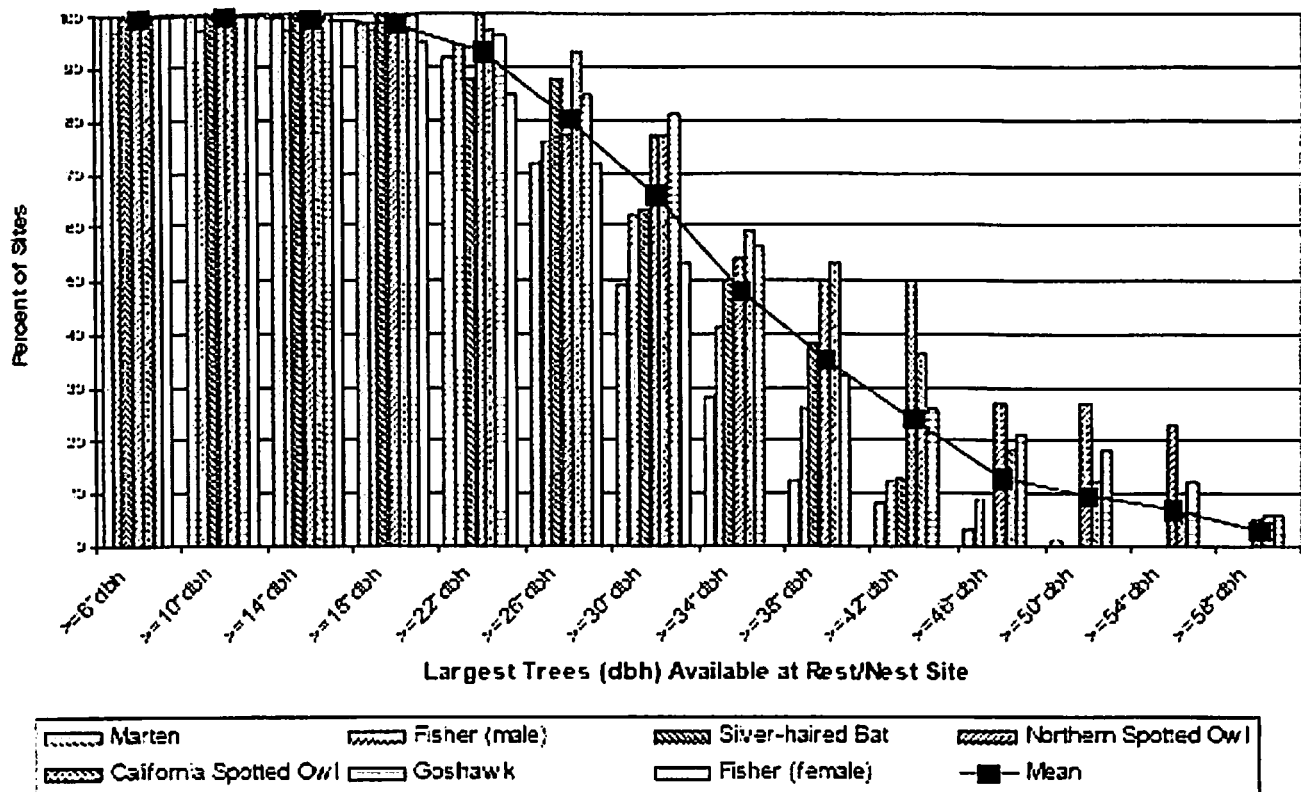
	Pine marten (n=165)	Pacific fisher males (n=34)	Pacific fisher females (n=87)	Northern spotted owl (n=19)	Northern goshawk (n=26)	Silver- haired bat (n=8)	California spotted owl (n=30)
Rest/Nest Structure (inches)							
Mean dbh	32.9	30.0	30.1	33.7	29.0	29.5	33.9
SD*	13.0	12.0	14.0	16.5	15.0	12.4	13.9
Range	8-79	10-58	8-75	12-66	13-79	12-47	15-76
Median	32.8	28.0	28	29.5	24.2	28.0	31.7
Mean±1SD	20-46	18-42	16-44	17-50	14-44	17-41	20-48
Rest/Nest Site Data** (inches)							
WHR QMD Mean***	15.3	13.3	10.8	13.8	17.9	13.5	15.6
SD	3.1	3.0	1.5	2.5	5.8	3.2	2.4
Range	9-28	9-19	8-15	10-19	11-40	10-19	10-22
Median	15.0	12.0	10.3	14.4	15.0	14.0	15.6
Mean±1SD	12-18	10-16	9-12	11-16	12-23	10-17	13-18
Percentage of Rest/Nest Sites with No Trees ≥ dbh							
≥ 14" dbh	0.0	2.9	1.2	0.0	0.0	0.0	0.0
≥ 18" dbh	1.9	2.9	4.6	0.0	0.0	0.0	3.3
≥ 22" dbh	7.6	5.9	15.0	0.0	3.8	12.5	3.3
≥ 26" dbh	27.6	23.5	27.6	22.2	15.4	12.5	6.7
≥ 30" dbh	50.5	38.2	47.1	22.2	19.2	37.5	23.3
* SD = 1 Standard Deviation from the mean							
** Collected within 115 ft. of rest/nest structure							
*** Quadratic mean diameter at breast height of all trees ≥ 5" dbh.							

The average diameter of the used tree/snag in these data was highly variable, with a minimum size used by any species being 15 in. dbh. The mean ±1 standard deviation for all species included use of trees as small as 20 in. dbh. This indicates that trees and snags in stands containing 22-in. dbh trees and larger are most likely of adequate size to meet the needs of these wildlife species for nest/rest site use.

The quadratic mean diameter (QMD) of trees within 115 ft. of the nest/rest structure was also variable, with a minimum size used by all species being 11 in. dbh. The mean ±1 standard deviation for all species included QMDs as small as 13 in. dbh. These data, combined with those described in the paragraph above, indicate that stands with a QMD of at least 13 in. dbh and including some trees at least 22 in. dbh or larger, are capable of supporting nest/rest site use by these species.

Starting at 14 in. dbh and using 4-in. increments, the percentage of sites without any trees greater than or equal to the test size dbh class are displayed in Figure 2, which contains extensions of data beyond Table 2. The curve of the means associated with the 7 species indicates that there is a clear change in the number of sites that have trees between 18 and 26" dbh. Specifically, all six species chose sites that included at least one tree at least 18 in. dbh in almost all cases, whereas there is a clear change in the chart, resembling a threshold, in terms of requirements for trees larger than 22" DBH. This "threshold" indicates that these species needs regarding the presence of large trees are met by 22" dbh or larger.

Figure 2. Percent of Individual Species Rest/Nest Sites With at Least 1 Tree \geq ___" dbh



Thus, the Life form 4 stand condition (large tree dense forest) provides quality nesting/resting and denning habitat for wildlife species that breed and/or feed in large-tree stands, such as WHR structural classes 4D, 5D, and 6D. Wildlife species make significant use of the large-tree component of these stands. Quadratic mean diameters of trees in these stands are generally greater than 13 inches and there are significant numbers of trees greater than 22 inches in diameter. Thirty-five species of wildlife are assigned to this habitat form. Representative species include clouded salamander, northern goshawk, wood duck, northern and California spotted owl, American marten, pileated woodpecker, Vaux's swift, silver-haired bat, northern flying squirrel, and Pacific fisher. Management activities that maintain a variety of snag and log sizes and inclusions of hardwoods (mainly oaks) generally enhance this habitat form for use by wildlife.

Below, we include a more specific, detailed discussion regarding the California spotted owl and the Pacific fisher as examples of how the Life form 4 habitats provide for their maintenance and continued use of SPI lands. In this case, these two species are used as "indicators" of the likely outcome of SPIs' long-term management planning and implementation for all species associated with Life form 4 habitats.

Federal and State Studies and Planning Documents

In order to analyze the effects of our proposed timber harvest activities on forest-dwelling species and their habitat we have considered various Federal studies and planning documents. Sierra Pacific Industries has been an active participant in all of the following US Forest Service and BLM planning efforts:

- Region Five Land Management Plan Final EIS/Regional Guide
- California Spotted Owl EIS (CASPO)
- Revised Draft EIS for Managing California Spotted Owl Habitat
- Sierra Nevada Ecosystem Project (SNEP)
- Quincy Library Group EIS (QLG)
- Sierra Nevada Forest Plan Amendment Draft EIS (Framework)

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- Sierra Nevada Forest Plan Amendment EIS (Final - Framework)
- Various Forest Plan EIS's for the National Forests in the Sierra, including the:
Lassen, Plumas, Tahoe, Tahoe Basin, El Dorado, Stanislaus, Sierra, and Sequoia National
Forests.
- BLM California Regional Land Management Plans
- Sierra Nevada Forest Plan 2001 Amendment EIS (Revised Final – Framework 1)
- Sierra Nevada Forest Plan 2004 Amendment SEIS (Revised Final – Framework 2)
- Fish and Wildlife Service (USFWS) 2006 12 Month Finding regarding Federal California Spotted
Owl Listing Petition
- USFWS 2006 Finding regarding Federal Fisher Listing Petition
- Department of Fish and Game 2008 Recommendation regarding State Listing Petition
- Sierra Pacific Industries (SPI) 2008 Federal Fisher Candidate Conservation Agreement with
Assurances (CCAA)
- USFWS 2008 Environmental Assessment Summary regarding SPI's Fisher CCAA
- USFWS 2008 Conference Opinion and Finding regarding SPI's Fisher CCAA
- Conservation Biology Institute's 2008 Final Report to the Forest Service regarding short and
long-term effects of fuels management on fisher and their habitat in the southern Sierra Nevada.

Sierra Pacific Industries involvement in the development of these documents and the documents themselves were considered for their information, background, and the context that they bring to the description of the environmental setting. However, it should be noted that all the federal efforts were designed to produce large scale Planning and Assessment Documents, not to assess the site-specific effects of individual projects. According to the SNEP analysis, for project planning and management decisions, the scale should be the CALWATER planning watershed units (a subdivision of the major river basins, used by SNEP and delineated by the California Department of Water Resources) (SNEP 1996). This is the primary project scale assessment area we have chosen for the local area THP cumulative effects assessment. Proposed activities for individual projects on federal lands are analyzed in a subsequent Environmental Assessment or EIS that is tiered to one of these planning documents. Four other points should also be noted concerning these Federal Planning Documents:

1. Public policy recommended by these documents (and, in some cases the scientific underpinning for that policy) was superseded by the subsequent approval of the next federal planning document to be released. For example, the CASPO Report was supplemented by the SNEP Report and the Frameworks, both 1 and 2, were designed to supersede all the listed planning documents above.
2. Implementation of the most recent federal planning document to govern management of federal forests in the Sierra Nevada (the revised Framework) is undergoing further review and is under legal challenge by several different interest groups.
3. Sierra Pacific Industries has site-specific data and scientific studies on a number of terrestrial and aquatic wildlife species that are incorporated into our individual THPs. We believe that this information is generally more probative when analyzing effects of our activities than federal studies that are largely literature reviews of studies from areas not in close proximity to Sierra Pacific lands or are very general remote sensing based, map or photo reviews, which rely heavily on assumptions and subjective decisions about site specific conditions.
4. Implementation of the latest federal plan (Framework) has been found by the Forest Service and the USDI Fish and Wildlife Service to have a high likelihood of adequately protecting habitat for the California spotted owl, regardless of what occurs on private land. (USDA 2001, USDI 2001, USDA 2004, USDI 2003).
5. Continued implementation of current management plans for the Forest Service and private forest lands were not likely to adversely affect the Pacific fisher in California and would most likely be beneficial to the fisher (CDFG 2008).

The bulk of federal planning documents concern planning, as opposed to biological information, and this process is driven by public policy and political considerations at a national level—not just biological data. As such, much of the planning portion of these federal documents is predicated upon goals and priorities not applicable to private lands. In addition, data and habitat conditions from private land are inadequately considered in these federal studies. The federal opinion from the US Fish and Wildlife Service on the USFS Sierra Nevada Framework 1 states:

"This analysis assumes private lands do not contribute to the proportion of moderate and dense canopied habitat within home ranges, because the future status of that habitat remains uncertain."

(pg. 75- 76 USDI 2001, US Fish and Wildlife Service's Biological Opinion on the Framework,) (Emphasis added)

"Management of industrial forests is governed by the forest practice rules of the Z'berg-Nejedly Forest Practices Act, which provide no specific measures to protect or maintain habitat for California spotted owls and therefore do not provide assurance that activities will retain the amount and quality of habitat expected to maintain spotted owl occupancy or productivity (Bart1995, Hunsaker et al. in press, Verner et al. 1992)."
(Pg. 138 USDI, 2001.) (Emphasis added)

"The FEIS reported that timber harvest on private lands has been and will continue to be a major source of cumulative impact upon spotted owl habitat in the Sierra Nevada. According to the FEIS, it is assumed that spotted owl habitat on private lands will continue to decline under current Forest Practices rules."
(Pg. 138 USDI, 2001.) (Emphasis added)

For these reasons, the federal planning documents listed above are of limited value in drawing conclusions about appropriate management prescriptions on private lands. To the extent the biological information (as opposed to the "assumptions", "planning" and "federal public policy" information) in these documents was deemed relevant, we considered it in the process of analyzing potential impacts of timber harvest activities on various wildlife species and their habitat.

CUMULATIVE IMPACTS ASSESSMENT

- I. Do the assessment area(s) of resources that may be affected by the proposed project contain any past, present, or reasonably foreseeable probable future projects?

Yes ☒ No ☐

If the answer is yes, identify the project(s) and affected resource subject(s).

See pages attached.

- II. Are there any continuing, significant adverse impacts from past land use activities that may add to the impacts of the proposed project?

Yes ☐ No ☒

If the answer is yes, identify the activities and affected resource subject(s).

- III. Will the proposed project, as presented, in combination with past, present, and reasonably foreseeable probable future projects identified in items (I) and (II) above, have a reasonable potential to cause or add to significant cumulative impacts in any of the following resource subjects?

	Yes after mitigation (a)	No after mitigation (b)	No reasonably potential significant effects (c)
1. Watershed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Soil Productivity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Biological	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Recreational	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Visual	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If column (a) is checked in III above, describe why the expected impacts cannot be feasibly mitigated or avoided and what mitigation measures or alternatives were considered to reach this determination impacts. If column (b) is checked in III above describe what mitigation measures have been selected which will substantially reduce or avoid reasonably potential significant cumulative impacts except for those mitigation measures or alternatives mandated by application of the rules of the Board of Forestry.

(b) Some of the mitigation measures selected that substantially reduce or avoid reasonably potential significant cumulative impacts, except for those mitigation measures or alternatives mandated by application of the rules of the Board of Forestry, include road mitigation projects listed in Section II and the proposed In-Lieu and the site preparation activities. More information on the proposed mitigations can be found under the appropriate subheading

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IDENTIFICATION OF RESOURCE AREAS

Cumulative impacts shall be assessed based upon the methodology suggested in Board Technical Rule Addendum Number 2 (Forest Practice Cumulative Impacts Assessment Process), and shall be guided by standards of practicality and reasonableness.

A description of the geographical area of each resource subject and a rationale for establishing the selected boundaries is given below.

Watershed Assessment Area

The watershed assessment area (WAA) for this THP includes, and is entirely within, LOWER BLUE CREEK – CALWATER version 2.2 planning watershed 6532.600505. FPR 895.1 defines planning watershed as follows:

Planning Watershed means the contiguous land base and associated watershed system that forms a fourth order or other watershed typically 10,000 acres or less in size. Planning watersheds are used in planning forest management and assessing impacts. The Director has prepared and distributed maps identifying planning watersheds plan submitters must use. Where a watershed exceeds 10,000 acres, the Director may approve subdividing it. Plan submitters may propose and use different planning watersheds, with the Director's approval. Examples include but are not limited to the following: when 10,000 acres or less is not a logical planning unit, such as on the Eastside Sierra Pine type, as long as the size in excess of 10,000 acres is the smallest that is practical. Third order basins flowing directly into the ocean shall also be considered an appropriate planning watershed.

This watershed was chosen as the assessment area because it represents a distinct hydrological unit and suits the scale of the proposed timber operations. The watershed assessment area includes approximately **8,320 acres**. The watershed assessment area boundary is shown on the Watershed Assessment Area Map found at the end of Section IV. The watershed assessment area boundaries were selected in order to evaluate the potential cumulative impacts of other projects occurring in the drainage in combination with the proposed THP. The rationale for using the planning watershed is that it represents the natural collector of potential water quality impacts, since if they exist they will accumulate in the watercourses that define the planning watershed.

Soil Productivity Assessment Areas

The soil productivity assessment area boundaries are the same as the THP harvest unit boundaries. Projects located at other locations will not affect soil productivity within the proposed THP. The Soil Productivity Assessment area is entirely contained within the WAA.

Biological Assessment Area

The Biological Assessment Area (BAA) is the same as the watershed assessment area with the addition of any area outside the **Lower Blue Creek Watershed** that is within **1 (one)** mile of the THP harvest boundary. This area was chosen to encompass potential habitat of species that may be affected by harvesting on the THP area. This area is large enough to include diverse habitats ranging from creek-side riparian to tree covered slopes and ridge-tops. It is also large enough to include sufficient suitable habitat for species of special concern such as the California spotted owl and Board Sensitive species such as the Northern Goshawk. Conversely, the area is not so large as to dilute or render potential effects of the project undetectable.

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Clearly within this area, there are subunits as certain plants and animals are limited to specific habitats or physiographic locations. The greater biological assessment area includes all such smaller, species specific, assessment areas. Conversely a very few species may have home ranges/territories greater than the biological assessment area. Such species either fly or range over large areas searching for food and do not have restricted or very specific habitat needs at this scale. These species such as goshawks or Pacific fisher usually have more restricted ranges when nesting or denning. SPI considers nesting/denning needs at the biological assessment scale, and therefore if we meet these species needs at the BAA level, and have knowledge of the larger area, we can assess their potential impacts from this THP.

Some forest dwelling species may migrate or disperse over great distances. The RPF, the reviewing agencies and the public are aware that this BAA does not exist in isolation and that there is air and forest cover outside of this area. Species that might utilize all or a portion of this area would include goshawks, California spotted owls, fishers, and eagles. Adequate reproductive, resting and foraging habitat is required for each species. A brief review of surrounding watersheds indicates that this project will not impact available habitat in the region and will not cumulate with other activities to affect the species. On SPI lands the amount of available reproductive and resting habitat will increase substantially over time, and this is true for all watersheds where SPI owns timberland. Sustained yield requirements across the state constrain creation of contiguous forests comprised of small diameter trees, which condition would be adverse for fishers and spotted owls. In determining that the basic BAA is adequate we have looked at larger areas for species such as owls and fishers to determine that the choice of this BAA is not adverse to species with larger home ranges.

Additional support for the rationale to choose this BAA is that most similar projects on federal lands are recommended for project implementation analysis to use a planning watershed scale area for impact analysis (See SNEP Vol. I Chapter 6 pg. 106-107). Finally, this scale of assessment area is recommended by the Board of Forestry in the definition of planning watershed (14 CCR 895.1) and to facilitate the required determination by CDF under 14 CCR 897(b)(1)(B) that functional wildlife habitat for all existing wildlife be maintained at the planning watershed scale.

Recreational Assessment Area

The recreational assessment area (RAA) includes the THP area plus 300 feet around it, as recommended in the cumulative impacts guidelines dated 13 August 1991. This distance was chosen because it is the distance within which the sights and sounds of the actual timber harvest might be most intrusive. Listeners or viewers more than 300 feet from operations are not expected to be significantly impacted. The Recreation Assessment Area is contained entirely within the BAA.

Visual Assessment Area

Defined as the project area that is readily visible to a significant number of people who are no further than three (3) air miles from the forest operation. This distance is chosen because it represents the threshold of significant visual impact in the opinion of the plan submitter. Viewers using the naked eye are not likely to be significantly impacted if observing from a distance of more than three miles.

The visible area is not entirely within the WAA, however it is likely that nearly all of the visible area is. The very small "windows" where the Visual assessment area may breach the boundaries of the WAA cannot be accurately identified on a map. Thus creating a map will not add clarity to the assessment area. For the purpose of assessment the Visual Assessment Area shall be contained entirely within the BAA.

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Vehicular Traffic Impacts Assessment Area

The traffic assessment area includes the private and public roads leading from the THP to the mill sites. The existing private and public roads have a history of log truck traffic. The assessment area was chosen in order to evaluate the potential for cumulative impacts upon the existing transportation network.

PAST AND PRESENT ACTIVITIES WITHIN THE ASSESSMENT AREA

PAST PROJECTS

Historic logging operations were initiated around the turn of the century. The harvest method used was typically Clear cutting with ground lead steam donkey yarding. Harvesting has continued in the watershed since the turn of the century as the remaining old growth was harvested and residual stands were harvested. More recently second-growth timber is being harvested throughout the watersheds. The majority of the second growth harvesting has taken place since the advent of the Forest Practice Rules. The County of Calaveras Assessor's maps indicate that all of the THP area is zoned TPZ. Primary activities within the assessment area include timber management , recreational endeavors, and seasonal open range grazing of cattle.

In general, past activities have had various beneficial and adverse impacts on the overall condition of individual watercourses and micro-watersheds. The majority of the adverse impacts observed continue to stem from the forest road infrastructure. Localized sedimentation problems were noted, most were the result of poorly maintained or non-existent culverts at logging road crossings and the illegal use of the existing skid trail network by motorcycles and 4X4 quads. In a few of the lower order watercourses/ tributaries there is evidence of sedimentation and bank erosion (slight to moderate down cutting) and debris jamming, attributed again in part to the existing road network, inadequate drainage structures and facilities and the occasional high intensity rainfall events which are common in the Sierra during the summer months. However, it is apparent that the majority of this sediment is effectively filtered out of the stream before their confluence with the next higher order stream.





Past project records (timber harvest plans) at the SPI and CDF Fresno offices were queried based on the CIAA legal boundaries. Numerous timber harvest plans (THPs) that have been approved since 1997 were identified within the CIAA. In addition, USFS and US-BLM was contacted to obtain past project history, which is discussed within the Table below. The following Table summarizes the THP's that occurred on private lands within the CIAA by THP number, name, silviculture, location, and the THP acreage that is mostly within the CIAA.

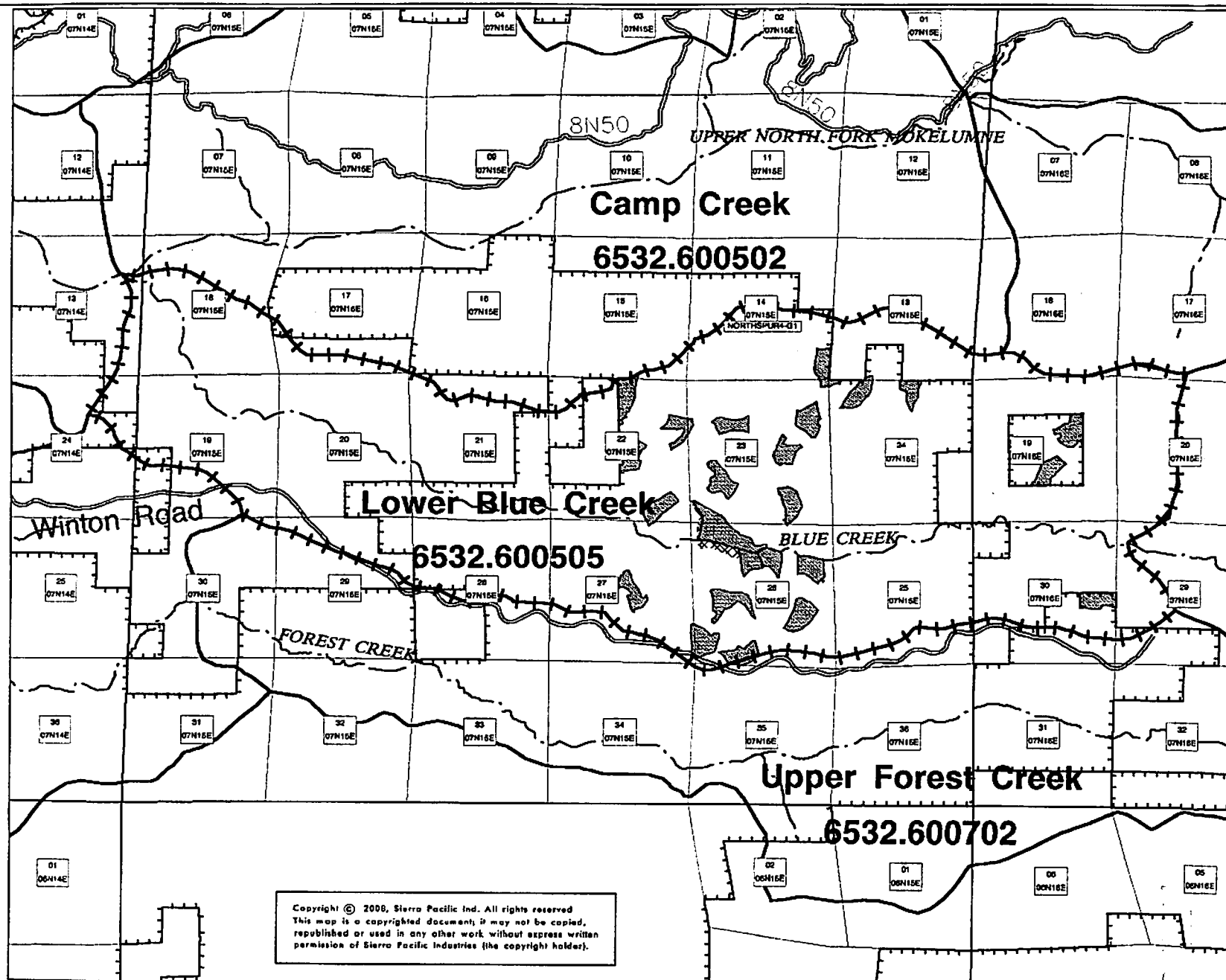
Lower Blue Creek (Planning Watershed 6532.600505)

THP#	THP Name	Silviculture *	Acres	Approximate Location
4-97-070 CAL		SEL STR CC Total	231 16 25 272	Sections 14,15,22,23,26,27, T7N, R15E, MDB&M
4-97-077 CAL	Cabin	SEL CC Total	146 23 169	Section 19, T7N, R16E, MDB&M
4-98-047 CAL	Forester Flat THP	FB CC CTH SWR SEL Total	15 18 3 20 32 88	Sections 19, 30, T7N, R15E, MDB&M
4-98-084 CAL	Spur 3 THP	SEL CC Total	539 93 632	Sections 35, 26, 27, T7N, R15E, MDB&M
4-98-107 CAL	Barnett THP	SEL CC Total	137 116 253	Sections 23, 24, T7N, R15E, MDB&M
4-98-118 CAL	Hermit Springs THP	CC FB Total	148 120 268	Sections 29,30,31,32, T7N, R16E, MDB&M
4-00-085 CAL	Camp Blue	ALT(STS) CC SEL SWR Total	16 642 58 8 724	Section 24, T7N, R14E, MDB&M & Sections 14,19,20,21,22,23,24,25,26,27, 28,29,35,36, T7N, R15E, MDB&M & Sections 18,19,30, T7N, R16E, MDB&M
4-00-091 CAL	Hazel	ALT(STS) CC SEL Total	2 156 9 167	Sections 14,15,16,19,20,21,22,23,26,27, 28,29, T7N, R15E, MDB&M
4-01-036 CAL	Spur 4A	ALT(CC) ALT(STS) CC SEL STS SWR Total	27 226 22 24 6 23 328	Section 24, T7N, R14E, MDB&M & Sections 19,20,21,25,26,27,28,29,35,36, T7N, R15E, MDB&M & Section 30, T7N, R16E, MDB&M
4-01-040 CAL	Blue Creek THP	SEL Total	20 20	Section 22, T7N, R15E, MDB&M
4-01-073 CAL	Walker	ALT(CC) ALT(STS) STS SEL SWR Total	34 262 10 47 11 364	Sections 14,15,19,20,21,22,23,24,25,26,27, 28,29, T7N, R15E, MDB&M & Sections 18,19, T7N, R16E, MDB&M
Total Acres = 3,285				
★	<div> <div> SPS = Shelterwood – Prep. Step SWS = Shelterwood – Seed Step SWR = Shelterwood – Removal Step SEL = Selection GSEL = Group Selection </div> <div> CC = Clearcut STR = Seed Tree – Seed Tree Removal Step STS = Seed Tree – Seed Step-Prep. Step TRAN = Transition Method ST = Special Treatment </div> <div> CTH = Commercial Thinning ALT = Alternative Prescription RH = Rehabilitation SS = Salvage FB = Fuel Break </div> </div>			

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LEGEND

-  SPL Ownership
-  Watershed Assessment Area (WAA)
-  Planning Watersheds
-  Seviggly Project Area
-  Tail-black area only
-  Permanent Roads
-  Class I Watercourse



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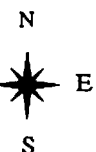
Watershed Assessment Area

Timber Harvest Plan Area


Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
 sections 13,14,15,22,23,24,26,27; T7N, R15E, MDB&M
 sections 19 & 30; T7N, R16E, MDB&M

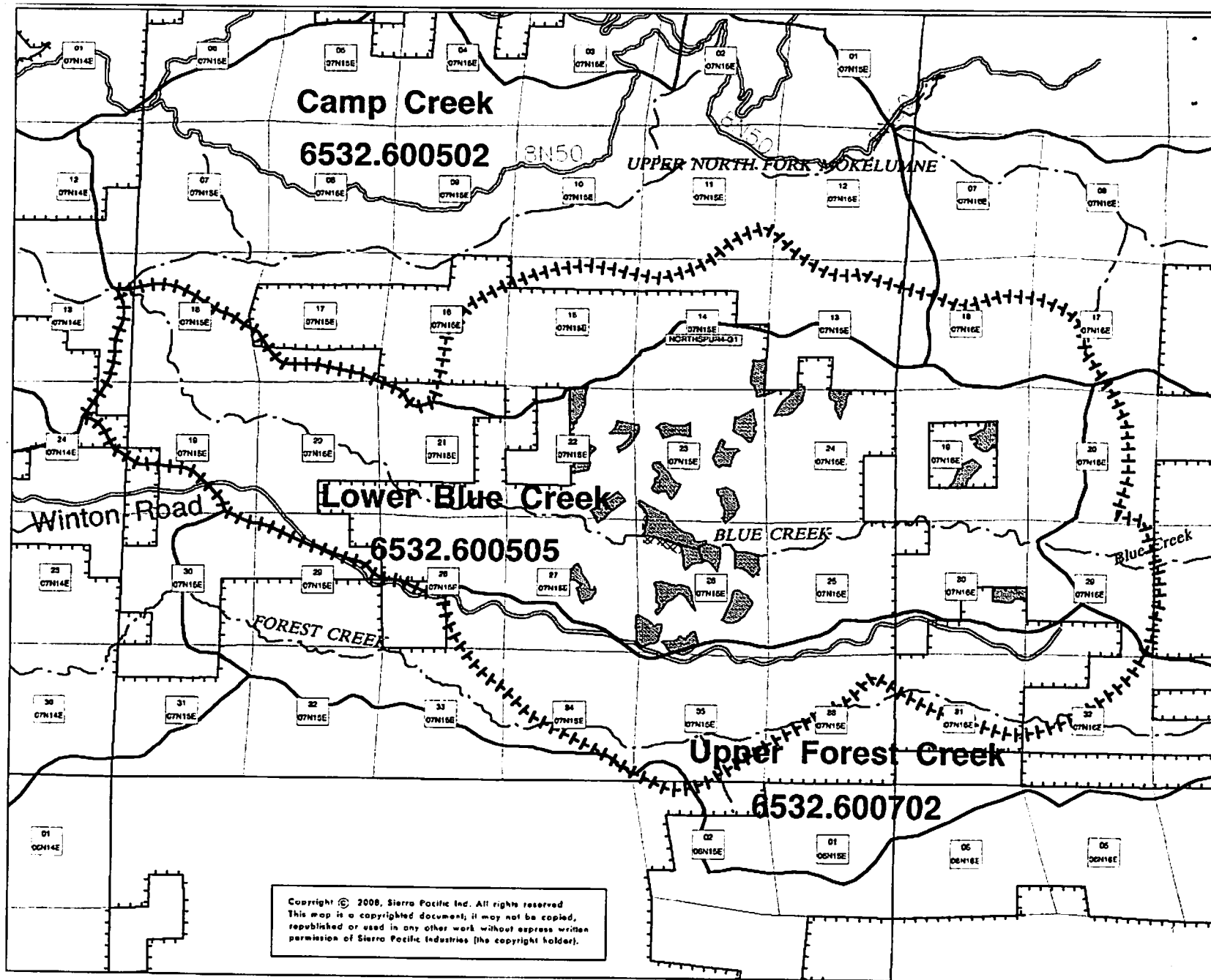
1" = 5600'

Feet



LEGEND

-  SPI Ownership
-  Biological Assessment Area (BAA)
-  Planning Watersheds
-  Savigly Project Area
-  Tail-block area only
-  Permanent Roads
-  Class I Watercourse



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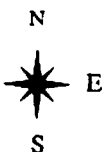
Biological Assessment Area

Timber Harvest Plan Area

Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
sections 13,14,15,22,23,24,26,27; T7N, R15E, MDB&M
sections 19 & 30; T7N, R16E, MDB&M

1" = 5600'

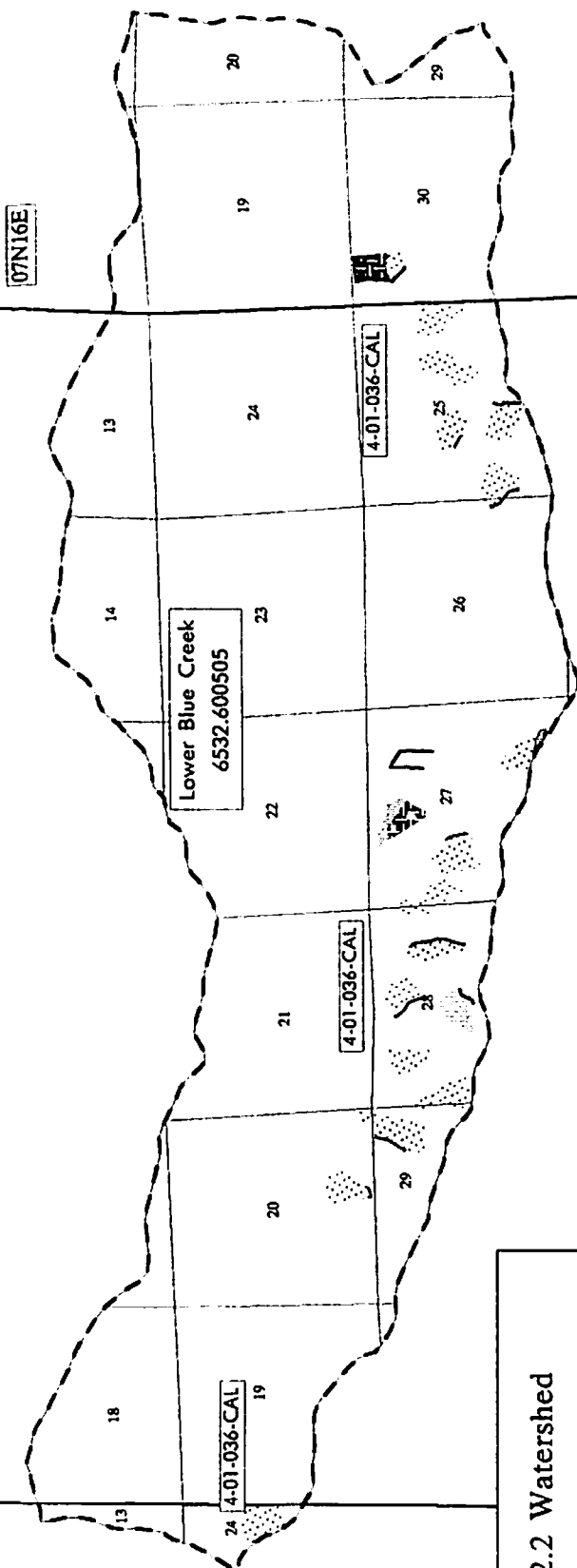
Feet



SQUIGGLY (1 of 4) Past Silviculture

07N14E

07N15E



07N16E

Cal 2.2 Watershed

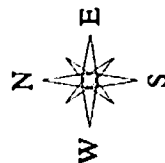
Clear Cut (14 CCR 933.1)

Alternative (14 CCR 933.1)

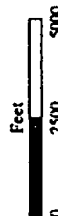
Shelterwood Removal (14 CCR 933.1)

Selection (14 CCR 933.2)

Seed Tree Seed Step (14 CCR 953.1)



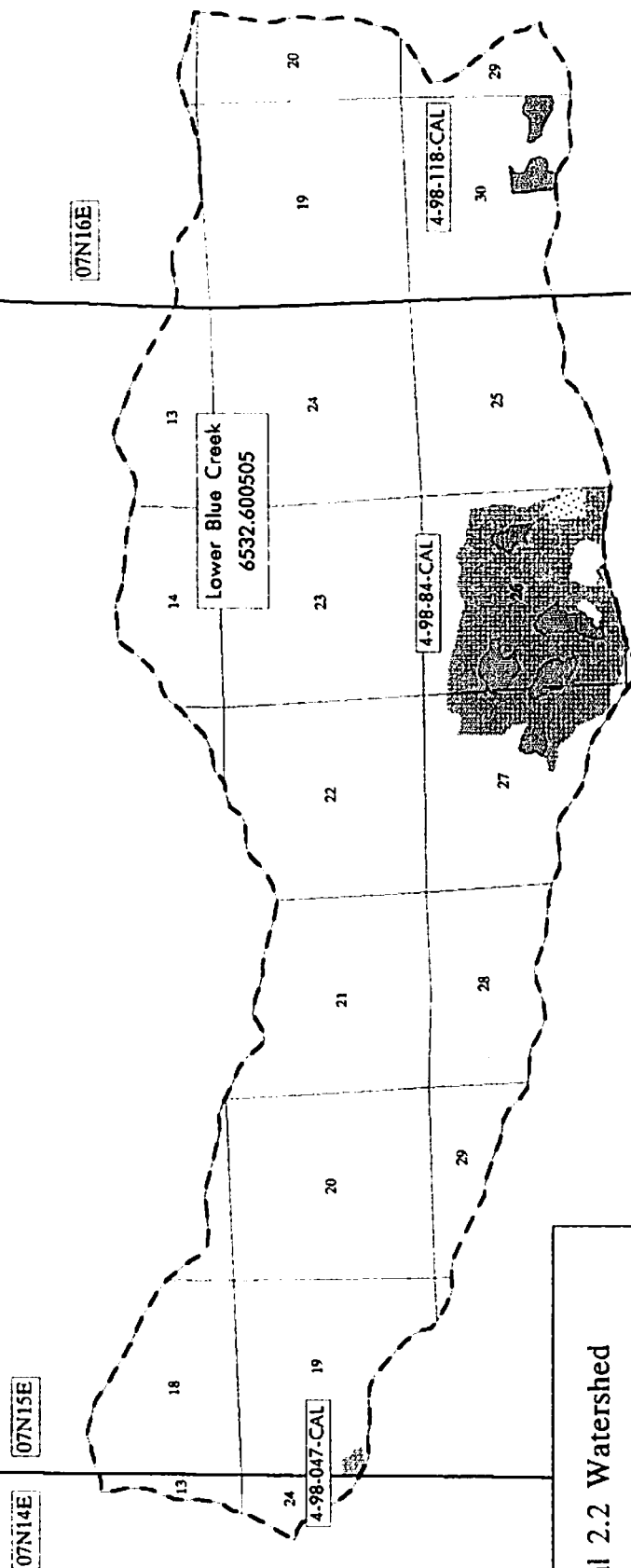
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SQUIGGLY (2 of 4) Past Silviculture



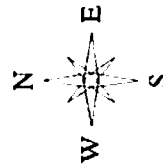
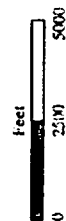
Cal 2.2 Watershed

Clear Cut (14 CCR 933.1)

Selection (14 CCR 933.2)

Shelterwood Removal (14 CCR 933.1)

1: 60,000



GIS Source: Sierra Pacific Ind. Proprietary GIS

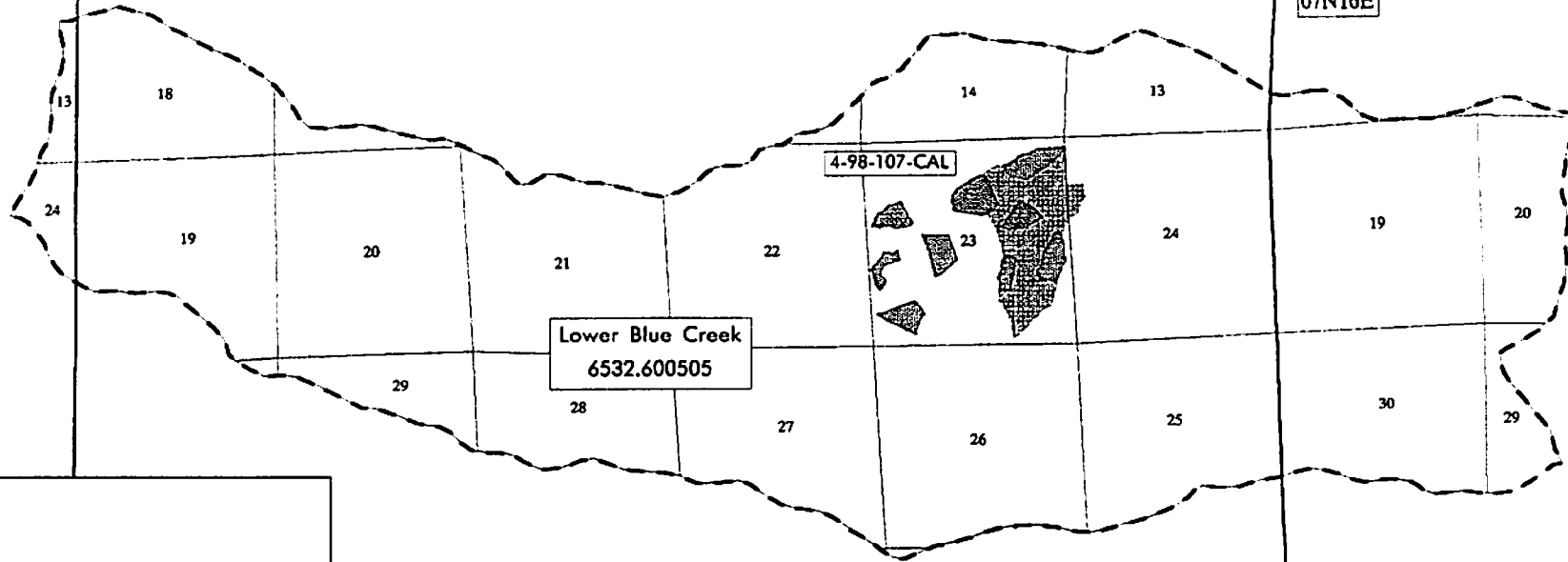
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SQUIGGLY (3 of 4) Past Silviculture

07N14E

07N15E

07N16E



[] Cal 2.2 Watershed

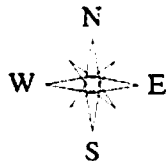
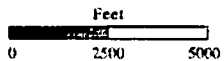


Clear Cut (14 CCR 933.1)



Selection (14 CCR 933.2)

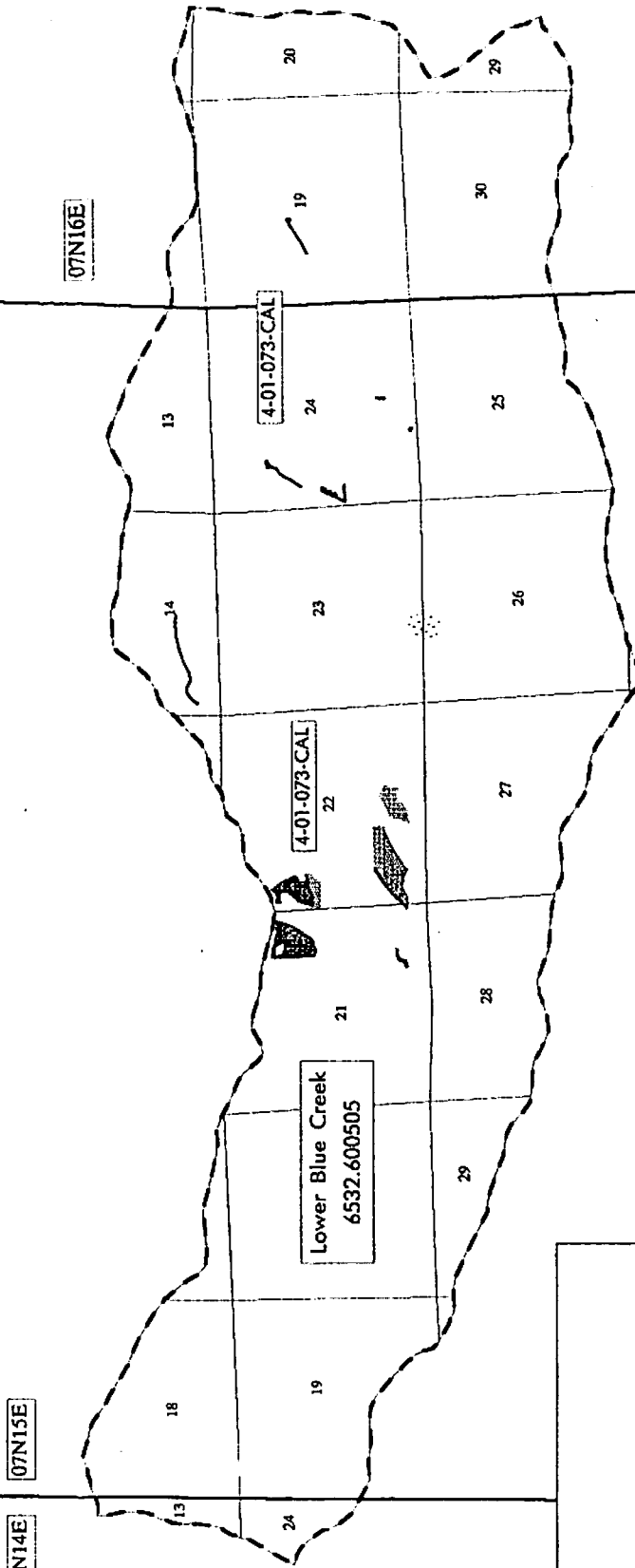
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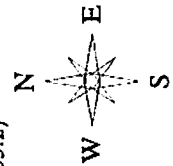
SQUIGGLY (4 of 4) Past Silviculture



Cal 2.2 Watershed

- Alternative (14 CCR 933.1)
- Seed Tree Seed Step (14 CCR 933.1)
- Shelterwood Removal (14 CCR 933.1)
- Selection (14 CCR 933.2)

1: 60,000



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The following Table summarizes the THP's that occurred on private lands within the Biological Assessment Area by THP number, name, silviculture, location, and the THP acreage that is mostly within the BAA.

Biological Assessment Area				
THP#	THP Name	Silviculture *	Acres	Approximate Location
4-97-070 CAL		SEL STR CC Total	231 16 25 272	Sections 14,15,22,23,26,27, T7N, R15E, MDB&M
4-97-077 CAL	Cabin	SEL CC Total	146 23 169	Section 19, T7N, R16E, MDB&M
4-98-047 CAL	Forester Flat THP	FB CC CTH SWR SEL Total	15 18 3 20 32 88	Sections 19, 30, T7N, R15E, MDB&M
4-98-084 CAL	Spur 3 THP	SEL CC Total	539 93 632	Sections 35, 26, 27, T7N, R15E, MDB&M
4-98-107 CAL	Barnett THP	SEL CC Total	137 116 253	Sections 23, 24, T7N, R15E, MDB&M
4-98-118 CAL	Hermit Springs THP	CC FB Total	148 120 268	Sections 29,30,31,32, T7N, R16E, MDB&M
4-98-066 CAL	South Forest Creek	CC SEL Total	88 605 693	Sections 35, 36, T7N, R15E, MDB&M Sections 31, T7N, R16E, MDB&M Sections 2, T6N, R16E, MDB&M
4-98-102 CAL	North Forest Creek	CC SEL Total	86 596 682	Sections 27, 28, 33, 34, 35, T7N, R15E, MDB&M
4-00-085 CAL	Camp Blue	ALT(STS) CC SEL SWR Total	16 642 58 8 724	Section 24, T7N, R14E, MDB&M & Sections 14,19,20,21,22,23,24,25,26,27, 28,29,35,36, T7N, R15E, MDB&M & Sections 18,19,30, T7N, R16E, MDB&M
4-00-091 CAL	Hazel	ALT(STS) CC SEL Total	2 156 9 167	Sections 14,15,16,19,20,21,22,23,26,27, 28,29, T7N, R15E, MDB&M
4-01-036 CAL	Spur 4A	ALT(CC) ALT(STS) CC SEL STS SWR Total	27 226 22 24 6 23 328	Section 24, T7N, R14E, MDB&M & Sections 19,20,21,25,26,27,28,29,35,36, T7N, R15E, MDB&M & Section 30, T7N, R16E, MDB&M
4-01-040 CAL	Blue Creek THP	SEL Total	20 20	Section 22, T7N, R15E, MDB&M
4-01-073 CAL	Walker	ALT(CC) ALT(STS) STS SEL SWR Total	34 262 10 47 11 364	Sections 14,15,19,20,21,22,23,24,25,26,27, 28,29, T7N, R15E, MDB&M & Sections 18,19, T7N, R16E, MDB&M
Total Acres =			4,660	

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★	SPS = Shelterwood – Prep. Step	CC = Clearcut	CTH = Commercial Thinning
	SWS = Shelterwood – Seed Step	STR = Seed Tree – Seed Tree Removal Step	ALT = Alternative Prescription
	SWR = Shelterwood – Removal Step	STS = Seed Tree – Seed Step-Prep. Step	RH = Rehabilitation
	SEL = Selection	TRAN = Transition Method	SS = Salvage
	GSEL = Group Selection	ST = Special Treatment	FB = Fuel Break

PRESENT PROJECTS

Periodic salvage logging is occurring within the WAA and BAA. Otherwise there are no present projects at this time. Currently unburned slash / biomass piles exist on the adjacent USFS lands. Ignition of these piles is planned for an undetermined date within the near future.

FUTURE PROJECTS

Since SPI's property in this planning watershed is owned as timberland and zoned for timber production, it is likely that eventual timber harvest will occur on most SPI owned lands. SPI will evaluate its silvicultural options for lands not included in this THP and choose appropriate silviculture to continue to meet its timber harvest and wildlife goals with future harvests. SPI would also continue to meet the requirements of the Forest Practice Act (FPA) and Rules if additional harvesting were proposed. Generally, SPI's evenaged managed stands have rotations ranging from 60 to 80 years. In addition, SPI reserves the right to harvest as necessary to deal with incidental salvage, catastrophic fire, and disease or bug outbreaks. Continued maintenance to the existing road watercourse crossing facilities and the seasonal road system can be expected. The construction and maintenance of cooperative strategic fuel reduction/fuel break areas is expected to occur during the first decade. These large-scale protection systems are designed to protect against loss due to catastrophic wildfire. The cooperative fuel reduction/fuel break areas are under consideration by both State and Federal agencies and the landowner wants to reserve the right to cooperate in these efforts. These proposals are normally on ridge systems and along existing roads and therefore they are unlikely to have significant cumulative impacts.

Variables such as changes to the FPA, the FPA rules, CEQA, CEQA rules, other Local and/or State Law changes, bug outbreaks, fire, etc, make it very difficult to speculate upon future plans. However, assuming no substantive change in the variables mentioned, this plan as submitted details the reasonably foreseeable probable future projects that are likely to occur on SPI lands within the Watershed CIAA for the next decade.

As a general description of future decades, given that all the variables suggested in our previous statement remain constant, SPI will likely submit timber harvest plans that are substantially similar to the proposed project within the THP CIAA. SPI maintains a commitment to non-declining flow, and expects the acreage of future proposed THP's to decline each decade as stand growth accumulates and the forests approach regulation.

Forest Service (USFS), United States Department of Agriculture

A letter was sent to USFS, Calaveras Ranger District, Hathaway Pines office asking for any information concerning any past, present and future activities on USFS land around the plan area.

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CUMULATIVE ASSESMENT ANALYSIS

WATERSHED

General Description

The watershed assessment area is comprised of the state designated Lower Blue Creek watershed 6532.600505. According to the Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board (RWQCB) Central Valley Region, 4th Ed., the assessment area lies within the Upper Mokelumne Hydrologic Area of the Middle Sierra Hydrologic Unit within the San Joaquin Hydrologic Basin. For purposes of assessment area selection, the acreage included in this state designated watershed is considered to be adequate for and meet the general criteria for use under the Director's guidelines.

The following tables describe some general characteristics of the Lower Blue Creek watershed:

General Watershed Information	
Watershed	Lower Blue Creek
Acres	8,320
Perimeter (Miles)	19.7
Basin Length (Miles)	7.2
Channel Orientation	W
Min. Elevation	2,880
Max. Elevation	6,320
Watershed Order	2
Downstream Watershed	Lower Panther Creek
RWQCB	532.6
CalWater 2.2	6532.600505
Threatened or Impaired	No
Anadromous Salmonids	No
Current Land Uses	Timber, Grazing, Recreation, Residential

Ownership	
Sierra Pacific Industries	4,617 acres (55%)
Stanislaus National Forest	3,543 acres (43%)
Small Private Landowners	160 acres (2%)

Stream Mileage by Class	
Stream Class	Lower Blue Creek (miles)
I	9.1
II	25.7
III	16.5
IV	-

Road Information	
Road Type	Lower Blue Creek (miles)
Seasonal	76.5
Seasonal Abandoned	1.6
Road-Miles per Mi ²	5.9

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Moderate amounts of bank cutting, debris clearing, canopy reduction, and severe scouring and bank mass wasting is occurring in the adjacent upstream watershed from the Lower Blues Creek Watershed; Upper Blue Creek watershed. Approximately 200' downstream from the bridge crossing in Upper Blue Creek watershed, a bank mass wasting (BMW) event introduced approximately 21,600 ft³ of sediment into *Blue Creek*. This BMW is still active and will continue contributing sediment into *Blue Creek* until it stabilizes. Downstream from this event, scouring and canopy reduction become more evident. Upstream from the bridge crossing, another BMW of slightly smaller dimensions is also inputting sediment from the road into *Blue Creek*. This road is maintained by the USFS and this BMW is being rectified by USFS. The condition of this segment may be attributed to the flooding event that occurred in January 1997. USFS Hydrologist Jim Frasier from the Stanislaus National Forest stated this event was the largest on record.

CURRENT CONDITION OF WATERCOURSES

All of the class I and class II watercourses were evaluated during a general field reconnaissance of the THP area. Additionally most of the watershed assessment area outside of the THP was also evaluated during a general field reconnaissance. Conditions checked were the stream channel and bank (for bank cutting and bank mass wasting), erosion and sediment problems (downcutting), pool filling activities, overstory and understory thermal regulating cover, debris jamming and any general indicator that may have a negative impact on the natural watershed systems. In addition, if warranted by present stream course condition, including crossings, an evaluation of restoration to the extent feasible was considered.

Class I Watercourses

Two class I streams occur within the THP boundary; Blue Creek and Cherry Creek.

Blue Creek – Blue Creek is a larger high volume stream exhibiting a wide channel with a very high composition of large boulders and bedrock. Gravel and cobble stone deposits are plentiful and occur regularly. Abundant pools are present providing good in-stream habitat for fish and other aquatic species. Cut banks along Blue Creek are high and steep and there is evidence of continuing bank cutting and incision during high flow events. Canopy closure is greater than 80% at the stream banks and slightly less within the stream due to the large width of the stream. The stream channel is in stable condition with a low to moderate amount of debris jamming, yet large woody debris is abundant. Small Woody Debris is abundant throughout the length of the watercourse within the high flow mark.

At one location along Blue creek, and within the THP area, there is evidence of high flow mass induced movement. Due to the steepness of the Blue Creek cut banks, high flows have the ability to exercise hydraulic energy versus the toe of the adjacent hill slope. This has resulted in multiple small slides and a few moderate sized slides. These slides are not a result of upslope activity, but a result of Blue Creek's hydrological effects. Essentially the cut banks of Blue Creek are experiencing periodic mass cutting along with increased steepness. These areas were noted during the preparation of this THP, but are not considered unstable areas due to their association with the naturally evolving stream morphology of Blue Creek.

Cherry Creek – Cherry Creek flows down a much steeper course into Blue Creek and demonstrates a much narrower channel. Cherry creek exhibits abundant small pools, boulders, and heavy gravel beds. Additionally large woody debris is frequent within the channel. 90% to 100% canopy closure exists throughout the length of Cherry Creek. Bank cutting and mass wasting appears to be minor to absent and in stream deposition is occurring in the form of gravel beds. Debris large and small is frequent within the channel.

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Class II Watercourses

Overall, the Class II watercourses in this area can be characterized as being confined watercourses that are generally lined with moderately dense riparian vegetation. Channel bottoms characteristically have gravel to cobble size flat and angular rocks, underlain by bedrock. The January 1997 storm event was a rain-on-snow event that caused a number of streambed and near-riparian effects of the channels. The majority of the watercourses in the area show signs of downcutting, recent incision, exposed raw banks, and signs of lateral erosion. Some debris jamming occurred as vegetation bordering the watercourses fell into the watercourse. Other (existing) debris jams were moved downstream or were totally removed by the force of the runoff. There is a considerable amount of streamside vegetation providing support along the stream banks. There appears to be a more stable stream substrate (cobble, rock or gravel) in the stream bottoms.

There are several Class II watercourses within the THP area. Some of these streams exhibit sufficient flows of water for most of the year. In the late summer, some of these watercourses run dry except for isolated pools and spring areas. The stream banks are well covered with large and small conifers with and an abundant shrub layer at the ground level. All Class II watercourses have >80% canopy cover. The stream channels appear stable with many of the steep portions having a bedrock channel bottom where large boulders are frequent.

The unnamed Class II watercourse (labeled 2D within the THP) bordering the south-east boundary of Unit 343 contains a 48 inch functioning culvert along a legacy road. The culvert is functioning well but the inlet was partially blocked in the past with boulders. This partial blockage has affected the culverts ability to receive high volume flows. Fill covering the inlet was thus partially eroded, through the eddying effect. The partial boulder blockage has been corrected by hand and the inlet now simulates the original installation. Approximately 14 feet of road surface still remains and the area appears to be stable. Where this legacy road intersects the haul road, the road has washed away as described in unstable area "U1". The road between the wash out and the culvert exhibits some signs of outside fill failure but the surface is densely covered with small conifers. To access this culvert a new road would need to be constructed across an unstable area or along 40% to 50% slopes for approximately 200 to 300 feet, or an excavator will need to pilot a short spur to an existing skid trail to reach the legacy road; only to reach a culvert that is functioning. This condition does not appear to be causing deleterious effects to water resources.

Class III Watercourses

Most Class III watercourses within the plan area are dry throughout most of the year, or may only flow during extreme events like the storm in 1997. None of the watercourses exhibit a high potential to transport sediment except under extreme conditions, which would result in the removal of down woody material, and vegetation is currently providing channel rehabilitation and/or stabilization. Most Class III watercourses appear in good shape, with a stable channel profile. Other areas show signs of debris jamming mostly from naturally occurring dead vegetation (abscised limbs and branches, litter, and dead trees falling-over which have died from suppression or light exclusion). The Class III watercourses that exhibit signs of raw exposed banks or downcutting of stream channel may be a result of the January 1997 storm event.

WATERCOURSE ROAD CROSSINGS

Watercourse road crossings can be sources of impending or ongoing significant cumulative impacts and are important in determining watershed health. The failure of watercourse crossings by themselves can cause on-site or downstream impacts that can affect the beneficial uses of water. Consequently, watercourse road crossings were inventoried and analyzed as part of the Watershed Resources assessment. The following watercourse road crossings within the watershed assessment area were inventoried in 1999 by Alpine Land Information Services in preparation of the CIAA for the THP's in this area:

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Lower Blue Creek Watercourse Crossings Summary Table											
	Arch	Box	Bridge	CMP	Ford	Humboldt	Pipe	None	Other	Unknown	Total
Crossing Count	-	-	1	89	9	-	-	21	-	35	155
Blown Out	-	-	-	-	-	-	-	1	-	-	1
Damage	-	-	-	3	-	-	-	1	-	-	4
Overtop	-	-	-	6	-	-	-	-	-	-	6
Diversion Potential	-	-	-	52	-	-	-	1	-	-	53
80%+ Plugged	-	-	-	7	-	-	-	-	-	-	7
80%+ Rusted	-	-	-	3	-	-	-	-	-	-	3
Drop/Shotgun	-	-	1	51	-	-	-	-	-	-	52

The inventory of the watercourse crossings consisted of a wide variety of information not only necessary to evaluate the present condition, but also to evaluate the risk of failure and potential impacts. Examples of information inventoried include structure dimensions, structure type, structure condition, watercourse classification, watercourse dimensions, and road dimensions.

The following characteristics are considered and assigned to a watercourse crossing if the structure's condition meet the definitions listed below:

1. **Blown Out** represents a crossing lacking a structure that previously existed, or where water has bypassed the structure, due to natural events.
2. **Damage** represents any structural damage that may impede the proper function of the structure.
3. **Overtop** describes if there is evidence that the structure has ever been overtopped.
4. **Diversion potential** indicates if, in the event of overtopping, or upstream debris movement, the watercourse would be diverted from the crossing.
5. **>80% plugged** is reserved mostly for CMPs, pipes, or boxes, if their inlet is >80% plugged.
6. **>80% rusted** is reserved mostly for CMPs, and metal pipes, if they are >80% rusted.
7. **Drop** indicates the percentage of structures where there is a drop from the outlet.
8. **Shotgun** is reserved mostly for CMPs or pipes where the outlet is extended beyond the fill.

After data compilation, each crossing is ranked for risk of failure based on the previously discussed seven characteristics. Ranking is accomplished by assigning a variable number of "red flags" to each crossing. The number of "red flags" assigned is determined by the following:

- Type of characteristic (ex: a blown out crossing would be assigned more red flags than a crossing that is just damaged)
- Number of characteristics (ex: a crossing that is damaged and overtopped would have more "red flags" than a crossing that is just overtopped)
- Intensity of characteristic (ex: a crossing that is 95% plugged would have more red flags than a crossing that is 80% plugged)

The chart above shows that many culverts show signs of "drop" or "shotgun", which means that the January 1997 has down-cut a few channels within the project area to a level below the general outlet level of the culverts. The rainfall intensities produced runoff which down-cut the Class III and smaller Class II watercourses anywhere from a few inches to about a foot. In the larger Class II watercourses, the drop in channel grade was more severe, in some cases possibly dropping a foot or two.

Significant crossing improvement projects have already been undertaken in the watershed in conjunction with prior THP's. In addition to these projects, spot rocking was performed on many stretches of road along Spur 3 and Spur 4. In virtually all cases, new or replacement culverts

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have rip-rap on the inlets and outlets, and generally, all exposed soil around these projects have been seeded and straw-mulched.

Additional projects which benefit the road infra-structure include recurring maintenance (cleaning of culverts, re-establishing ditches, the re-installation of dips and waterbars in roads, and usually the installation of straw-bale sediment traps within all WLPZ road segments). These past projects, in conjunction with projects proposed for this THP will greatly improve the watershed road condition, and result in not only less potential for negative impacts to water quality, but should improve the overall water quality of the watershed over time.

Foster Wheeler Watershed Assessment

In addition to the cumulative watershed analysis conducted as part of the preparation for this proposed plan, SPI hired an environmental consult to assess the overall condition of the Upper Mokelumne Watershed. What follows is a synopsis of what this environmental consultant did:

Foster Wheeler Environmental Corporation conducted a watershed-wide inventory and assessment of the entire Upper Mokelumne watershed, which is approximately 578 square miles in size. This study was conducted in 1999 and 2000. The one state planning watershed which is included in the watershed assessment for this THP was included in this analysis, as were downstream and adjacent watersheds.

The resources considered in the Foster Wheeler analysis included: soils and erosion, stream channel and streamside riparian zones, watershed hydrology, water quality, vegetation and fire disturbance, and terrestrial and aquatic species and habitats. The soils and erosion assessment focused on soil erosion potential (both hill slope and road erosion) and soil instability potential. The stream channel assessment addressed the susceptibility of stream channels, especially to excessive sediment delivery from hill slope disturbances. Streamside riparian conditions were evaluated with respect to stream shading, large woody debris recruitment potential, and riparian roads. The watershed hydrology assessment characterized the stream flow regimes influenced by timber harvest and roads, and included consideration of rain-on-snow potential and the flood of 1997. Water quality was addressed in relation to point and non-point source pollution. The vegetation and fire disturbance assessment evaluated vegetation composition and structure, fire regimes, and silvicultural treatments. Evaluation of terrestrial and aquatic species (both animals and plants) and habitats provided an overview of the distribution and potential occurrence of special status species and species of special concern and their associated terrestrial and in-stream habitats.

Another component of the assessment was a watershed susceptibility screening that synthesizes watershed conditions and key impact indicators to provide a ranking of the planning watershed by their inherent susceptibility to disturbances. The rankings were not intended to predict the potential impacts to a watershed from a variety of disturbances (such as timber harvesting, forest fires, and/or flood events). Rather, they represent a relative measure of inherent risk. By ranking the risk, different management recommendations can be proposed for different rankings, and when integrated into timber harvesting activities, these practices can help ameliorate any possible negative impacts to the watershed.

A final component of the assessment was the development of recommendations to minimize the potential risks of disturbance from timber harvest.

The results of the Foster Wheeler assessment indicated that the water quality in the Upper Mokelumne River is excellent, and that this is due primarily to the limited development that has occurred in the watershed. Previous water samples drawn from the Mokelumne indicate that there is little threat from contaminants (such as trace metals, organic or microbial contaminants).

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Quantitative ratings of stream reaches within state Planning Watersheds within the Mokelumne before the January 1997 storm indicated that 2% of the stream reaches assessed were characterized as "Excellent", 75% were characterized as "Good", 18% were characterized as "Fair", and only 5% were "Poor."

The 1997 flood event changed the attributes of these streams, generally decreasing the overall quality of the streams. In some cases the change was negligible, in others it was more severe. The majority of the streams assessed showed signs of recent incision, exposed, raw banks, and signs of lateral erosion. However, in many of the stream segments surveyed, the stream channel's pool-riffle structure has been completely reestablished after the January 1997 flood.

Riparian assessments indicated that most planning watersheds showed a high proportion of moderate and high density riparian canopy. With all land in the Upper Mokelumne watershed combined, 38 percent of riparian zones had canopy closure in the high density category; while an additional 37 percent was in the moderate density category. About 25 percent of all riparian areas had low density canopy.

With respect to Large Woody Debris (LWD) recruitment potential, nearly all planning watersheds within the Upper Mokelumne watershed had greater than 90 percent ability to recruit LWD within those areas with coniferous trees. Therefore, there is generally a high amount of LWD recruitment potential. If only riparian areas on SPI lands are considered, an even higher proportion of streams with ability to recruit LWD exists.

Roads within the riparian zones were inventoried. Total road miles within riparian zones were calculated, and the total length of the streams in each planning watershed was measured. The resulting Road/Stream Ratio characterized how much of the stream length is (or can be) affected by riparian roads. For the entire Upper Mokelumne watershed, the total Road/Stream Ratio was 1.6 percent, indicating that only a very small percentage of the stream reaches may be influenced by riparian roads. (Note that for this analysis, "riparian zones" were defined as 100 feet on each side of a stream).

An important element in the Foster Wheeler assessment was the synthesis of watershed conditions to develop a ranking of the planning watersheds by their inherent susceptibility to disturbances. Parameters to develop the ranking included: soil erodibility factors; length of roads within soils with high erodibility factors; the number of road stream crossings on SPI ownership as a percentage of total stream crossings; the acreage of Mehrten Formation on SPI ownership as a percent of planning watershed; the length of stream response reaches as a percentage of total stream length for the entire planning watershed; and the percentage of SPI ownership in the rain-on-snow zone.

Numeric values were assigned to these six parameters, the values were added together, and the composite numeric rankings for all the parameters were given a rating from A (a planning watershed which is minimally susceptible to disturbances) to D (a planning watershed which has the highest susceptibility with respect to the six parameters considered).

Of the 26 planning watersheds in the Upper Mokelumne which have SPI ownership, 6 had an "A" ranking, 7 had a "B" ranking, 7 had a "C" ranking, and 6 had a "D" ranking.

Note that this ranking is not regionally adjusted, that is, it cannot be compared to similar rankings in other geographic areas within the State. Previous findings have shown that for total erosion potential, the Sierra Nevada rank low, while the Klamath province ranks moderate and the north Coast Ranges rank high. For example, a "D" ranked watershed in the Sierras may be equivalent to a "C" rank in the Klamath area, and a "B" rank in the Coast Range.

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The Lower Blue Creek watershed received a "B" ranking.

As a final step, Foster Wheeler developed "Integrated Management Recommendations" to provide relevant forest management recommendations to minimize potential significant adverse impacts. These recommendations are directed toward watersheds receiving a "C" or "D" ranking, however much of the recommendations will be incorporated into the Lower Blue Creek watershed in an effort to continually improve conditions within the watershed. Some of the recommendations related to forest practices for areas of special concern, such as around watercourses and riparian areas, road and landing construction and maintenance, watercourse crossings, wet and winter operations, slope stability, and site preparation. Specifically, these recommendations included:

Watercourses and Streamside Riparian Areas: To avoid stream misclassification, it needs to be classified during time of the year when life form and stages are present. Streamside riparian areas will have variable width in accordance with CFRs. Trees will be retained in riparian areas to provide adequate stream shade for maintenance of cool water temperature and large woody recruitment as riparian functions. When shown to be a limiting factor, especially in Class I and II watercourses, the tree retention and/or recruitment level will be increased or special measures implemented on a site-specific basis. To the greatest extent feasible, minimize the number of roads constructed in riparian areas adjacent to Class I and II watercourses except for stream crossings. When roads must be located adjacent to Class I and II watercourses, stabilize all fills and minimize side casting. Use equipment exclusion zones for existing roads in the riparian areas, especially adjacent to Class I and II watercourses. Exposed soils in riparian areas will be treated according to CFRs.

Road and Landing Construction and Maintenance: Develop site-specific management guidelines addressing soil erosion and sediment delivery potential from roads near streams, roads crossing streams, roads crossing unstable slopes, and roads crossing erodible soils. Prevent severe surface erosion events caused by road building that directly impacts any stream. Maintenance of existing roads and landings after timber operations will be improved. Utilize existing roads wherever possible. Roads will generally be constructed with outsloping road surfaces. When necessary to inslope, inside ditches with cross drains will be utilized. Road or landing construction will avoid unstable locations, minimize fills, stabilize fills, and will not be conducted under saturated soil conditions. No new roads through areas with high or very high surface erosion potential unless drainage and erosion control structures are in place. Permanently deactivate certain high-risk roads, consistent with access management requirements.

Additionally, results from the California State Board of Forestry's "Monitoring Study Group's 1999 Report" (which were cited by Foster Wheeler), identified very few erosion features associated with WLPZ's, indicating that properly implemented WLPZ's are generally sufficient to prevent hillslope erosion.

In conclusion, the Foster Wheeler report gave us an overall look at the watershed, and their assessment indicated that the overall health, stability, and condition of the Upper Mokelumne Watershed is good. By assessing risk factors which could negatively affect the watershed, and by identifying where those risk factors exist within the Mokelumne, Foster Wheeler identified areas of concern within the watershed. And by providing us with a list of general and specific management recommendations, Foster Wheeler provided a framework to help reduce any significant negative impacts to the watershed which may occur from a variety of management activities. A copy of the Foster Wheeler report entitled, "Watershed Assessment of the Upper Mokelumne" was sent upon request to CDF offices in both Fresno and San Andreas as important appurtenant documentation to the Bailey Ridge THP (4-00-68/CAL-10)

Specific Measures to Implement

A list of additional measures to help alleviate potential adverse impacts is as follows:

1. Existing skid trails, haul roads, and landings shall be used when ever feasible, if such use is consistent with the plan and the forest practice rules.
2. Skid trails within the THP shall be held to a minimum number required to remove logs.
3. All skid trail approaches to landings and roads, which have a down-slope gradient of greater than 30 %, shall be seeded and mulched up to and over the first waterbar, if in the opinion of the RPF, the area has the potential to transport sediment into a nearby watercourse. The area shall be seeded with a Soil Conservation Service approved seed blend and mulched with straw to an average depth of 2 inches with a minimum coverage of 75%.

(The application method used : the seed blend will be spread by hand at approximately 15 to 20 pounds per acre)

Fall seeding for the purpose of erosion control shall occur late enough that rains will not germinate the seed before snowfall, but no later than November 15th. If operations continue after November 15th (within the winter operating period) then seeding and mulching shall occur immediately upon or prior to shut down periods and immediately upon conclusion of the operations for the immediate area. Mulching shall be used for stabilization of the disturbed areas for the first winter period following the timber operations

4. All trees shall be felled "to lead" when feasible, in order to minimize the need to turn logs prior to skidding.
5. Site-Prep and planting of clearcut areas will be accomplished in a timely manner after the completion of operations in order to meet the state stocking standards within five years. Wind rowing, contour ripping, and leaving large woody debris on site will be employed to mitigate potential erosion and sediment runoff concerns of site-prep measures.
6. Mitigation projects specific to this proposed project are listed under **item #25**, in Section II of the THP

Conclusion: When considering the implementation of the above described mitigation measures for this THP area and the surrounding watershed assessment area, in combination with past completed mitigation, any potential significant adverse impacts will be reduced or prevented from potentially contributing to a "cumulative effect. It is concluded that after the mitigating measures and the use of "Best Management Practices", water quality, the beneficial uses of water and other related resource values will not be significantly affected.

Watershed Concerns and Mitigation

A review of the proposed operation and the watershed resources within the assessment area indicate the following points of concern: 1) preventing sediment introduction into watercourses which could affect fish and amphibian habitat; 2) preventing chemical contamination; 3) retaining moderate to high levels of canopy cover for shade and LWD recruitment opportunity. Use of appropriate yarding methods relative to slope gradients and watercourse locations and protection measures provided to watercourses within the plan should be adequate to protect water quality. Harvesting is proposed within the Class I WLPZ of *Blue Creek* – a tributary to the Upper North Fork of the Mokelumne, Class I WLPZ of *Cherry Creek* – A tributary to Blue Creek, and multiple Class II WLPZs. Measures taken to ensure watershed integrity will include:

1. Limited harvesting within Class I WLPZ & Class II WLPZ thus maintaining adequate shade canopy. The Selection silviculture method is proposed for WLPZ areas where at least 100 sq. ft. of basal area shall remain post harvest.
2. At least 50% of the total canopy covering the ground will be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers to comply with 14CCR 916.9(g).
3. Immediate removal of accidental depositions of soil, slash, or debris from below the watercourse transition line.
4. Item #18 Soil stabilization measures.
5. The WLPZ area where harvesting is proposed will be marked prior to the Pre Harvest Inspection.
6. No downed logs or woody debris existing prior to start of operations within the WLPZ shall be removed.
7. No tractor skid trail watercourse crossings are proposed within the WLPZ. This will decrease the potential for disturbed soil in these watercourses.
8. WLPZ Haul Roads: There are multiple haul roads proposed for use within a WLPZ. All WLPZ haul roads are indicated on the logging operations map. These roads will be used for log hauling and equipment transportation.

Sediment

Sediment production potential is greatest on site with high EHR, on site where steep slopes will be tractor logged, and on unstable areas. The degree of soil disturbance and vegetation removal also affects sediment production. Protection measures that are incorporated into this THP to minimize the potential for sediment production include the following:

- 1) There will be no tractor operations on unstable areas, (please see Items 24 & 25) or on slopes over 65%, or on slopes over 50% above class I or II streams where the slopes do not flatten before reaching the stream, or on slopes with high EHR.
- 2) Road maintenance will utilize out-sloped road prisms and rolling dips where feasible to improve road drainage and thus decrease the potential for sediment transportation and water accumulation.
- 3) Directional falling of trees to minimize deposition of debris into the watercourse.
- 4) Soil deposited during timber operations in a Class III watercourses shall be removed and debris deposited during timber operations in a Class III watercourse shall be removed or stabilized before as per Item #18.
- 5) Equipment Limitation Zones (ELZ) are provided for all Class III watercourses.
- 6) Residual basal area within the Selection Silviculture, residual dispersed basal area, "point count stocking", Wildlife Retention Units, and other retention trees will provide interception and a filter for potential sedimentation. Interception of water will lessen the waters' ability to transport sediment.
- 7) Culverts along the existing haul road that appear to not have the ability to function until the next harvest entry shall be removed and replaced with a new culvert or a rolling dip prior to the completion of operations.
- 8) Protection measures to repair and or reduce impacts from existing roads as described in Item #25 Section II of this THP.

Water Temperature

Water temperature is most affected by the removal of shade *over and immediate* to the watercourse. Limited harvest is proposed for Class I WLPZ and Class II WLPZ.

1. Where Class I WLPZ and Class II WLPZ harvest is proposed: Greater than 50% canopy closure shall be retained. At least 100 sq. ft. of basal area per acre shall be retained.
2. The silviculture methods proposed within the WLPZ (Selection) will result in high amounts of living vegetative matter after operations.

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3. Equipment Limitation Zones (ELZ) on all Class III will lessen the potential loss of growing space and shade cover.

Organic Debris

Small and large organic debris (LOD) have different effects on a watercourse. Small debris can rapidly decompose and remove dissolved oxygen from the water. Moderate amounts of large debris can have a positive effect on the watercourse by providing structure and slowing the movement of sediment through the system. Trees will be felled away from watercourses and WLPZs, to the maximum extent possible, in an effort to keep small debris out of the watercourse. Treatment of debris that enters a watercourse is addressed in Item #26. Large organic debris is currently present in low to moderate amounts. No downed logs or woody debris existing prior to start of operations within a WLPZ shall be removed. Establishment of WLPZs provides for future recruitment of LOD.

Chemical Contamination

Potential sources are limited to accidental release of equipment fuels and oils. Maintenance and fueling of equipment shall be done in locations away from watercourses and out of the WLPZ road segments.

Peak Flows

The plan area and assessment area is located at relatively moderate to low elevations. "Rain on snow" events are common in this area. However some rain on snow events can cause peak flows. Adequate vegetation will remain on the ground after harvest for interception of rain. In addition there will be limited harvest (selection) in Class I WLPZ and Class II WLPZ, thus retaining much of the WLPZ interception vegetation. No significant change in peak flows is expected as a result of the proposed project.

Domestic Water Supply

There are no domestic water supplies within the THP boundaries. Adjacent to the THP, 1000 feet downstream of the THP, there are multiple domestic water supplies. Multiple neighbors replied by telephone informing SPI that summer homes located within section 22 utilize spring boxes or instream drafting for irrigation and periodic domestic animal purposes. Additionally some neighbors reported using treated domestic water for human consumption in infrequent and emergency situations. All homes that were discussed are located within the section 22, T7N, R15E MDB&M. Water from the spring box does not originate from SPI property. Operations are not expected to impact water resources.

303(d) Listing: Water Quality Concerns

The Mokelumne River below Pardee Dam is designated as an impaired waterway by the State Water Resources Control Board in its Clean Water Action Section 303(d) submittal. The impairment designation is currently for copper and zinc due to the presence of these elements in concentrations above the hardness based aquatic toxicity criteria. The presence of these metals is linked to abandoned mines in the Mokelumne watershed. The largest of these mines is the Penn Mine located on the southeastern shore of Camanche Reservoir. The Penn Mine site encompasses approximately 140 acres, with 20 or more shafts, several adits, and numerous open pits and cuts, two smelters and several mills. Historically, contaminated surface runoff from the Penn Mine flowed directly into the Mokelumne River. Completion of Pardee Dam, about 3 miles upstream from the mine, in 1929 decreased the stream flow available for diluting the contaminated runoff.

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In 1998, the U.S. Corps of Engineers, the Central Valley Regional Water Quality Control Board, and East Bay Municipal Utility District (EBMUD) initiated the Penn Mine Environmental Restoration Project under a Federal and Superior Court Settlement agreement to clean up Penn Mine. Restoration and mitigation work began in 1998 and was completed in November of 1999, at a cost of \$10,340,000. The work included landfill construction, mine waste excavation and disposal, landfill closure, re-vegetation, and monitoring well construction.

CVWQCB sources indicate that ongoing monitoring at the Penn Mine site is required before copper and zinc can be removed as an impairment concern.

The CVWQCB has identified the sources of the copper and zinc as "Resource Extraction" (mining) of those minerals from the above-mentioned Penn Mine. The Upper Mokelumne River, directly upstream from the Lower Mokelumne River, is not 303(d) listed for copper and/or zinc.

Timber harvesting activities in the Upper Mokelumne Watershed will not contribute heavy metals such as copper or zinc to the Lower Mokelumne River. Forest soils subject to harvest are not likely to contribute to copper or zinc, because overland movement of soil is mitigated through skid road waterbars and watercourse buffers. Rock formations rich in copper and zinc are found generally in lower elevations in the foothills, miles west of the area where most timber harvesting generally occurs. In addition, while reviewing research and literature from agencies and organizations such as the Board of Forestry and UC Cooperative Extension, we found no conclusive evidence that timber harvesting has any significant effect on the presence of heavy metals in watercourses. Therefore, we conclude that timber harvesting in the Upper Mokelumne will have no effect on the parameters of concern—namely copper and zinc—which caused a 303(d) listing of the Lower Mokelumne River.

Conclusion

When considering the implementation of the above described mitigation measures for this THP area and the surrounding watershed assessment area, in combination with past-completed mitigations, any potential significant adverse impacts will be reduced or prevented from potentially contributing to a "cumulative effect". It is concluded that after the mitigating measures and the use of "Best Management Practices", water quality, the beneficial uses of water and other related resource values will not be significantly affected.

I conclude that this project will not significantly affect the watershed resource because:

1. All Class I and Class II watercourses will have Water and Lakeside Protection Zones ranging from 50 feet to 150 feet depending on stream class and adjacent slope conditions to buffer the watercourses.
2. Class III Watercourses have 25 to 50 foot equipment limitation zones around them.
3. Minimum harvesting is planned within WLPZs of Class I or Class II watercourses.
4. End lining will be used adjacent to WLPZs and ELZs where needed.

SOIL PRODUCTIVITY

Site factors to be addressed for cumulative soil productivity impacts include:

1. Organic matter loss
2. Surface soil loss
3. Soil compaction
4. Growing space loss

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Organic Matter Loss

Loss or displacement of organic matter is primarily caused by use of heavy equipment for skidding, or high intensity fires. Organic matter loss can cause loss of nutrients contained in the topsoil and biomass associated with the harvest area. Most of the biomass nutrients are contained in the topsoil and foliage of the existing vegetation. Log skidding shall be confined to the greatest extent possible to existing skid trails to minimize the loss of growing space and organic matter. High intensity fires, such as those associated with catastrophic fires, are considered to have significant detrimental impacts on organic matter loss. High intensity fires as a result of the logging operations are not expected to occur. Due to the proposed prescriptions within this THP high intensity fires are likely to decrease in frequency and spread.

Surface Soil Loss

Loss of topsoil can significantly reduce soil productivity as the highest nutrient content is contained in the top layer of the soil. Surface soils can be lost due to erosion and displacement by heavy equipment. While displacement of some top soil and organic matter is unavoidable on haul roads and skid trails, the loss will be minimized by proper installation and maintenance of erosion control structures, straw mulching and grass seeding as specified in Section II, Item #18, of the THP.

Fall seeding, for the purpose of erosion control, shall occur late enough that rains will not germinate the seed before snowfall, but no later than November 15th. If operations continue after November 15th (within the winter operating period) then seeding and mulching shall occur immediately upon or prior to shut down periods and immediately upon conclusion of the operations for the immediate area. Mulching shall be used for stabilization of the disturbed areas for the first winter period following the timber operations.

Site prep activities will likely take place wherever Clearcut in proposed. Within these areas contour ripping will help maximize water absorption while minimizing surface runoff. Also, a large percentage of the down woody debris present will be left on site to minimize the impacts on long-term soil fertility and to provide habitat for forest floor dwelling species of wildlife. Site prep activities will increase the overall percentage of available growing space from it's current level. The plan area does contain an abundance of existing roads, skid trails, and landings, thus the amount of growing space that will be removed out of productive timberland is minimal.

Site-Prep and planting of Clearcut areas will be accomplished in a timely manner after the completion of operations in order to meet the state stocking standards within five years. Wind rowing, contour ripping, and leaving large woody debris on site will be employed to mitigate most of the potential erosion and sediment runoff concerns of site-prep measures. An effort shall be made to maintain healthy, vigorous pockets of regeneration present in the units.

Tractor yarding

- Existing tractor skid trails will be utilized to the greatest extent possible to insure minimum loss of growing space, minimum potential for ground disturbance, and minimum loss of vegetative cover.
- Tractor harvesting is proposed outside of watercourses, wet areas, and unstable areas.
- The silviculture method for WLPZ harvest is selection. Only trees that can be reached from the designated skid trails and haul roads by method of long lining will be selected for harvest.
- All skid trail approaches to landings and roads, which have a down-slope gradient of greater than 30 %, shall be seeded and mulched up to and over the first waterbar, if in the opinion of the RPF, the area has the potential to transport sediment into a nearby watercourse. The area shall be and mulched with straw to an average depth of 2 inches with a minimum coverage of 75%. (The application method used: the seed will be spread by hand at approximately 15 to 20 pounds per acre.)
- No skid trails will be built in WLPZs.

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Soil Compaction

Within the plan area soil compaction is associated with the use of heavy equipment, especially during saturated conditions. Soil compaction can affect site productivity through the loss of the ability to transmit air and water and by restricting root penetration. The restrictions of the operations during wet weather periods as specified in Section II, Item #23, will limit operations during periods when soil moisture is high. Also tractors will utilize to the greatest extent possible existing skid trails from previous harvest.

Growing Space Loss

Loss of growing space to roads and landings is an unavoidable factor in most harvest systems. The harvest will improve the productivity of this land, thereby offsetting any growing space loss. Tractor yarding will utilize existing skid trails to the greatest extent possible to minimize loss of growing space. To the greatest extent possible existing roads and landings will be utilized. Growing space losses resulting from this plan are not considered a significant adverse impact.

Conclusion

It is concluded that the timber operations will not significantly impact the loss of organic matter, surface soil, soil compaction, or growing space, because of the above management practices.

BIOLOGICAL

Several methods were utilized to evaluate the potential impact of operations under this plan on non-listed and listed species and to evaluate species occurrence within the proposed project area. The methods included the SPI Sighting database, CNDDDB, and surveys.

SPI's Sighting Database & Direct Observation

The sighting database keeps track of field observations made in and around the ownership. No additional species were identified through this method. As a matter of course, during preparation/field layout for the plan, special status species and their habitat were searched for.

Furthermore, field layout personnel and LTOs working on this THP for SPI will be instructed to report any suspected wildlife activity observed by them. If any of these species or any other species with a level of protective status is found during timber operations, harvesting activities in that vicinity will be discontinued, a follow-up field survey will be conducted and if necessary protection measures pursuant to 14 CCR 959.2 & 959.3 will be taken under the supervision and guidance of an SPI wildlife biologist.

CNDDDB Database

Based on a query of the NDDB (release date 10/2/2007) there were NDDB occurrences for both animals and plants in this watershed and/or adjacent watersheds.

The following pages contain discussions of those NDDB occurrences, other species of concern and their relationship to this THP.

Plant Database and SPI Botany Program

For all timber harvest plans, Sierra Pacific Industries conducts a comprehensive review of botanical resources within an assessment area. The SPI Plant Conservation Strategy is described in a publicly accessible document at www.spi-ind.com. The objective of the program is to apply scientifically based assessment and management methods to address special status plants with known or potential occurrence on SPI-owned timberlands.

SPI implementation of the program includes the identification of a specific list of special status plants for which survey and protection measures would be formulated. The SPI plant list includes all plants special status plants that may potentially qualify for consideration under California Environmental Quality Act (14 California Code of Regulations §15380), as well as all plants listed

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under the California Endangered Species Act). Our program is designed to build the necessary scientific data upon which to help make §15380 and CESA determinations.

The responsibility for application of the SPI Botany Program for any given THP is vested with the submitting Registered Professional Forester. SPI foresters undergo specific classroom and field training on special status plants relevant to their region. Additionally, botany program staff at SPI's corporate headquarters supports SPI foresters. SPI foresters are trained and assisted when necessary in the field by SPI staff and by outside botanical experts.

When a timber harvest plan is submitted for a particular region, the RPF follows a specific step-by-step process to assess, scope, and determine field survey requirements. In conjunction with research prior to plan submittal, the RPF conducts a review of special status plant occurrences for the planning watershed surrounding the plan using CNDDDB records and occurrences known to SPI but not yet in the CNDDDB database.

All submitted plans include current CNDDDB records for the subject planning watershed, but do not necessarily include in each and every instance all adjacent planning watersheds, since there is no objective method by which adjacent watershed or portions of watersheds are included or rejected. The RPF is free to change the scope of the watersheds included in the CNDDDB assessment as he/she chooses, based on their knowledge of the ecological features of the site.

For each THP, SPI conducts focused field surveys for special status plants for which known geographic distribution and ecology suggest occurrence in the timber habitat types within the plan area, and any known occurrences for species regardless of SPI List status.

In the event that a special status plant is discovered within a THP, the RPF modifies the silvicultural treatment and/or implements plant protection measures, as necessary, if mitigation is required to avoid significant impacts. Plant protection measures include such actions as retention of the species occurrence within a non-harvest area, application of specialized harvest methods (such as directional felling, yarding, or directed deposition of slash), or limitations on the timing of harvest entry. The selection of a particular plant protection measure is based on the biological requirements of each sensitive plant. Wherever SPI conducts harvest within or adjacent to sensitive plant occurrences, the effects of our activities are monitored while the plan is active.

SPI botany program measures comply with the requirements of CEQA, specifically §15380. Any potential impact to a rare, threatened or endangered plant is evaluated for CEQA significance, and if necessary, potential impacts are mitigated. In addition, the program meets California Department of Fish and Game Guidelines for Conservation of Sensitive Native Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations (July 2005).

There is a known occurrence of *Lomatium stebbinsii* adjacent to the plan area. No other special status flora was identified within the plan area. Suitable habitat for *Lomatium stebbinsii*, *Allium tribracteatum*, *Calochortus clavatus* var *avius*, *Mimulus pulchellus*, and *Piperia colemanii* exist within or directly adjacent to the THP boundary. Surveys for these plant species shall be conducted during the appropriate floristic window prior to the commencement of operations.

There is additional suitable habitat for *Ceanothus fresnensis*, *Clarkia virgata*, *Cypripedium fasciculatum*, *Cypripedium montanum*, *Lilium humboldtii* ssp *humboldtii*, *Jensia yosemitana*, *Mimulus laciniatus*, and *Sphenopholis obtusata* within or directly adjacent to the THP boundary. cursory surveys for these species shall be conducted in conjunction with the focused surveys and occurrences will be inventoried as part of other botanical survey activities.

A Botany Scoping Report and survey reports can be found in section V of this THP.

WILDLIFE DATABASE

Amphibians

California Red-legged Frog (*Rana aurora draytonii*)

The California red-legged frog (CRLF) is listed as a federal threatened species and a state species of special concern. This species was historically more widespread than it is today. The historic range extended from the north coast of California to the western foothills of the Sierra Nevada. The current distribution is restricted to the north coast of California and three isolated populations in the central Sierra Nevada. The CRLF is most often found in the lowlands and foothills within close proximity of permanent sources of deep water. On rainy fall/winter nights (November through May) the California red-legged frog may travel as much as 1 mile from aquatic habitat. All life stages of the frog are likely to be encountered in and around breeding sites. Breeding sites are known to include marshes, springs, permanent and semi-permanent natural ponds, ponded and backwater portions of streams, stock ponds, irrigation ponds and siltation ponds. These ponded areas usually have emergent vegetation such as *Typha* (cattails) and *Scirpus* (bulrushes) to be breeding habitat or dense growths of woody riparian vegetation, especially willow (*Salix* sp.) The presence of fish species such as brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) greatly reduces the suitability of water as frog habitat.

The protection measures inherent in WLPZs are expected to provide sufficient safeguards for potential habitat. Class I and Class II streams and wet areas will receive the required Watercourse and lake protection zones protection according to sections 16 CCR 956.4 and 956.5. Thereby adequately protecting the beneficial uses of water. WLPZ requirements ensure that riparian habitats are not significantly altered or fragmented. WLPZs also function as sediment filters, which are designed to eliminate significant increases of in-stream silt loads.

Foothill Yellow-legged Frog (*Rana boylei*)

The foothill yellow-legged frog (FYLF) is designated as a federal and state species of special concern. This species is currently widespread and abundant however, it has suffered a significant reduction in numbers due to the exotic predatory aquatic fauna. FYLF can be found from sea level to approximately 6,000 feet in the Sierra Nevada. This species is rarely encountered far from permanent water, prefers rocky (cobble) streams with open canopies and has a home range of less than 10 meters (DFG NDDB).

As no currently known populations of FYLF's occur within the CIAA and cursory surveys of potential habitat yielded no detections. The protection measures inherent in WLPZ's are expected to provide sufficient safeguards for potential habitat. Class I and Class II streams and wet areas will receive the required watercourse and lake protection zones protection according to sections 16 CCR 956.4 and 956.5. Thereby adequately protecting the beneficial uses of water. WLPZ ensure that riparian habitats are not significantly altered or fragmented. WLPZ's also function as sediment filters, which are designed to eliminate significant increases of in-stream silt loads. No additional mitigation is planned for this species.

Mammals

Mule Deer (*Odocoileus hemionus*)

Local Mule deer (*Odocoileus hemionus*), subspecies (*O.h. columbianus*) black-tailed deer populations tend to be migratory in nature. Seasonal movements take place between lower elevation, winter range and higher elevation, Summer range. Deer migrate downslope in winter, to areas having less than 46 cm (18 inches) of snow. As the snow melts, deer migrate to higher elevations to their Summer range. The elevation belt between winter and Summer range is called the intermediate range. It contains the migratory corridors and holding areas deer use during their seasonal movements. According to the Department of Fish and Game Deer Range maps given to Sierra Pacific by Mr. Bob Mapes, most of the plan area is in the intermediate range with a small portion in the winter range of the Salt Springs deer herd. By incorporating protection measures on

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watercourses and in particular, on wet-areas and springs, which can be found in the area, habitat for deer provided by riparian zones and wet areas will be protected. Additional protection of oaks is proposed under this THP. Part of the plan area will take out trees singly, opening up stands for easier movement and increase the amount of forage. Additionally, the clearcuts will produce openings, and possibly a mosaic of stand structures and vegetation which would contribute in a beneficial way to a number of the herds' specific habitat requirements as found in California's Wildlife Volume III, Mammals, page 352. Feeding: "Mule deer browse and graze. Prefer tender new growth of various shrubs (e.g. ceanothus, mountain mahogany, bitterbrush), many forbs and a few grasses.....forbs and grasses are important in spring. Pattern: "suitable habitat is a mosaic of vegetation, providing an interspersed of herbaceous openings, dense brush or tree thickets, riparian areas and abundant edge." The proposed silvicultural systems in this project should promote a mosaic of vegetation, an increase in forbs, grasses and herbaceous shrubs (such as ceanothus) and enhance forest "edge" attributes when compared to the existing pre-harvest condition. Also an excerpt from a Report to the Fish and Game Commission entitled, "An Assessment of Mule and Black-tailed Deer Habitats and Populations in California" (<http://www.dfg.ca.gov/hunting/rept.html>) further supports a direct correlation between the silvicultural prescription proposed and enhancement of the habitat requirements of deer. "It's well-documented that deer thrive on early successional vegetation in forested communities (Leopold 1950, Wallmo and Schoen 1981), and there is a period encompassing about 2-30 years following major disturbances such as fire or logging when herbaceous and shrub species are abundant, available, and in highest quality. Livestock and perhaps hundreds of largely unstudied species of wildlife such as blue grouse or mountain quail, also rely on the vegetation produced in forest openings where sunlight is allowed to "hit the ground" and enable plants to grow and be available for consumption or as cover."

Depending on the silviculture prescribed, some clearcut units may potentially receive a herbicide application. The use/application of herbicides is not considered to be incompatible with enhancing forest "edge" attributes and/or the promotion of a mosaic of vegetation including forbes, grasses and desirable browse species for deer. Herbicide applications to small areas do not create a substantial or potentially substantial adverse change in the environment. Impacts to target species are designed to be short lived. Site occupancy by re-invading vegetation or vegetation on site is rapid. Actually in most cases, the application of herbicides will enhance and prolong the establishment and duration of grasses, forbes and brush species by eliminating specifically targeted competing vegetation in a unit with lower browse value for deer, such as bear clover.

A number of habitat attributes are essential and must be present in sufficient amounts to maintain the viability of the habitat as suitable for this corridor. These essential habitat attributes include cover, feed and mast production. None of these essential habitat attributes are limiting, all appear to be abundant within the biological assessment area. The proposed plan encompasses a small percentage of the assessment area.

It is concluded when considering the silvicultural prescriptions, in conjunction with the mitigation's contained within the proposed plan pertaining to wildlife protection (oaks, where present, and thermal cover), the retention of individual oaks in even-aged units, and minimal operations within the WLPZ of Class I or II watercourses that the proposed plan will not have a significant adverse impact on the non-listed species of Mule Deer (*Odocoileus hemionus*) and subspecies (*O.h. columbianus*) Black-tailed deer.

Pacific Fisher

The following additional information relative to potential impacts on the Pacific Fisher is presented.

- While researchers have found significant fisher populations in the southern Sierra Nevada, they have been unable to detect fishers north of Yosemite National Park (Grabner 1996, USDI 2008a, CBI 2008, CDFG 2008).
- Elevation gradients are much steeper in the central and northern Sierra Nevada than in the southern Sierra Nevada fisher study area (SPI analysis of California topography, CBI 2008).

- Steep elevation gradients cause a narrowing of the area of conifer forest that is free of relatively deep snow-packs in the winter.
- The fisher, as a species, is known to avoid areas that contain consistent, stable and relatively deep winter snow packs (Powell and Zielinski 1994, Krohn et al. 1997, Krohn et al 2000).
- The combination of steep gradients in the central and northern Sierra Nevada coupled with the fisher's avoidance of areas of deep snow effectively reduces the amount of potential habitat for pacific fisher in some areas between Yosemite to the California Cascades to about the size of a fisher's home range (SPI analysis of California topography, CBI 2008).
- No differences have been measured in the number of large trees available in areas of the Sierra Nevada that are known to support fisher populations and those areas of the Sierra Nevada where researchers have been unable to detect fisher (USDA 2000, CBI 2008).
- Pacific fisher natal and maternal den trees on National Forest land in California averaged 33.1" dbh \pm 16.3" at one standard deviation (Truex et al. 1998). Pacific fisher rest trees on National Forest land in three fisher study areas in California averaged about the same size as the natal and maternal den trees (Truex et al. 1998) and usually occur in stands of small sawtimber (Zielinski et al. 1996).
- Pacific fisher rest and den trees on private forestland in the Klamath province averaged 30" in dbh \pm 13 inches at one standard deviation (Self and Kerns 1995, Reno et al. 2008, SPI 2008). Trees of these sizes are common on SPI's private forest land, currently averaging 18.90 per acre and are expected to increase in both amount and distribution over time as a result of proposed SPI management practices.
- A recently completed study found that plantations created through forest management harvest and rehabilitation activities achieve "over fisher" canopy cover (vegetative cover at 2 feet above ground and higher) within 10 years of plantation creation (Murphy 2008). This occurs because of aggressive management to reforest these areas with native forest cover. This equates to between 60-80% of privately managed forest lands always having canopy cover of sufficient quality to allow for dispersal and foraging by Pacific fisher.
- The California Department of Fish and Game recently recommended to the Fish and Game Commission that listing of the fisher was not warranted in California (CDFG 2008). In their recommendation, CDFG stated "...information received during review of this petition suggests that fisher also inhabit forests that are not considered late successional and are possibly more adaptable to forest change than previously perceived. Tree age and canopy closure of habitats being used were typically lower than those reported in the literature from researchers working largely on public lands and lower than that reported in the petition."
- In regards to assertions that the lack of fisher sightings in the northern Sierra Nevada mountains is due primarily to timber management practices, the CDFG stated: The Department cannot agree with the petition's contention that timber harvesting is largely responsible for the absence of fisher in much of the Sierra Nevada because the most compelling argument based on the science available, implicates historic trapping activity" (CDFG 2008).
- In regards to assertions that the population of fisher in California has dramatically declined in recent decades, the CDFG concluded: "The decline in range regularly inhabited by the fisher appears to have occurred around the time of the benchmark Grinnell assessment {1937} and appears to have been largely due to intensive trapping, although logging and poisoning of porcupine and other rodents are also implicated." "Consequently, it is reasonable to conclude that there may be at least as many fisher in California now, if not more, that there were estimated to be 80+ years ago" (CDFG 2008).
- The Fish and Wildlife Service conducted a coarse analysis of the relative stability of the fisher population in northern California and concluded: "Although we cannot infer population size with this technique and acknowledge that localized and temporal increases and decreases in the number of individuals probably occur, the extent of the contemporary distribution in NCAL suggests a persistence of fisher over a roughly similar geographic distribution as report by Grinnell et al. (1937). Because there is no apparent significant decrease in the extent of geographic distribution in NCAL, we infer some level of regional stability over the last 75 years..." (USFWS 2008a).

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The majority of rest and den trees of Pacific fisher using private forest land in the Klamath province occur in small areas with QMDs greater than or equal to 10" dbh, with canopy closures exceeding 60% (Self and Kerns 1995, Reno et al. 2008, SPI 2008). Stand conditions used for resting and denning by Pacific fisher occur throughout SPI's private forest land and are projected to increase in amount and distribution in the future under proposed SPI management practices. Pacific fisher rest and den tree habitat is likely to remain stable for the foreseeable future and will increase from an average of 20% to over 50% of SPI lands over the planning horizon (SPI Option A, SPI 2008). As the fisher forages in a wide array of habitats (including rest and den tree habitats), its' foraging habitat will always remain available under SPI's management.

As discussed in detail in the Alternative Silvicultural section, our management will produce more large trees, thus there will be more resting habitat. With the use of evenaged regeneration systems there will be interspersed types. These interspersed types are required for the habitat needs for a variety of prey species known to be utilized by the Pacific fisher.

There is nothing in the Federal or State documents that would cause us to conclude that private land management activities on our forest lands will have an adverse affect on the fisher or its habitat. In fact, the federal government is assuming that private lands will contribute nothing toward preserving fisher habitat or the species viability. (USDI, 2001, USDI(A) 2003, USDA 2001, USDA 2004). However, the recent review by the California Department of Fish and Game concluded that private forest lands management, as currently practiced, are likely to provide a significant contribution to the conservation of the fisher (CDFG 2008).

Based upon our current knowledge of this species habitat needs, and the conditions of our forests today, our management will improve habitat conditions on our land. Given this information, our proposed management is unlikely to cause short or long-term significant adverse effects on the habitat available for the Pacific fisher.

Based upon all the available information, including information available in federal studies, the long term impact of SPI's management practices throughout the Sierra's will be to increase the habitat of species utilizing dense forests with a large tree component such as the California spotted owl and the Pacific fisher. SPI private forest lands are already in a managed condition. Past selective logging has had an adverse affect on tree size and conifer volume per acre. These conditions will gradually be reversed over the next 100 years by a management regime designed to increase average tree size and abundance. (See the discussion of Silvicultural Alternatives in this plan).

If SPI were to harvest no trees over the next 100 years habitat conditions for species utilizing dense forests with a large tree component would be inferior to the stand conditions that will be created and maintained by harvesting as planned.

While the discussion of potential effects of many decades in the future show positive trends it is important to note that these trends and changes in the forest structure depend upon the continued implementation of a series of potential and speculative future projects, which are clearly not proposed by this plan. This THP produces habitat conditions after it is implemented that will continue to provide for the needs of the Pacific fisher and California spotted owl. At such time as these potential future projects are proposed SPI will and must per the Forest Practices Act and Rules once again conduct a cumulative impact analysis and modify and change those projects to respond to conditions at that time.

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Raptors

Focused Surveys:

Habitat for the California spotted owl and the northern goshawk does exist in the THP area. California spotted owl was not observed during the layout of this THP. However, one northern goshawk observation occurred during the layout of this THP. The sighting occurred within the month of September outside of any harvest units but adjacent to the plan area. SPI Biologist, Kevin Roberts, will evaluate this area to ascertain if the adjacent area(s) contain suitable habitat that warrant surveys.

SPI policy is to visit known nest sites located within harvest units or areas within ¼ mile of harvest units, during the year of harvest, to determine occupancy status. Other areas may also be targeted for focused survey due to indeterminate sightings or habitat assessment. There are no known or historical raptor nest sites within THP boundary. There are two historical California Spotted Owl (CSO) sightings within ¼ mile of the THP area. There is one historical California Spotted Owl (CSO) sighting within ½ mile of the THP area located within the adjacent planning watershed.

These recorded California Spotted Owl nest sight and sightings are shown below and also shown on Watershed and Biological Assessment Area Map at the end of Section IV.

<i>California Spotted Owl Territories</i>				
Owl (Territory)	DFG ID	Legal Location	Year	Status at That Time
Blue Creek I	CA030	T7N, R15E, S ¼ of the NW ¼ of Sec. 22	1992	Single
Blue Creek III	CA014	T7N, R16E, W ¼ of the SW ¼ of Sec. 19	1990	Pair
Blue Creek N (Upper Blue Creek Planning Watershed)	CA033	T7N, R16E, SW ¼ of the SE ¼ of Sec. 20	1992	Reproductive pair

California spotted owl sightings CA030 and CA014 are located adjacent to clear-cut units. Both of these areas contain potentially suitable spotted owl nesting habitat. Therefore, the sites listed above and the potential habitat surrounding these sites shall be surveyed specifically for California Spotted Owls, prior to operations, in the year of proposed harvest. If an owl nest is found within ¼ mile of harvest operations, protection measures shall be instituted as described below. California spotted owl sighting CA033 is located on USFS property approximately ½ mile East from clear cut unit 346; this site will not be included among the focused surveys for the operations of this THP.

There are three known northern goshawk NDDB sightings within one mile of the THP boundaries. These sightings are listed within the following table:

<i>Goshawk Sightings</i>				
Territory	DFG ID	Legal Location	Year	Status at That Time
Middle Blue	106715	T7N, R16E, SE ¼ of the NW ¼ of Sec. 30	1991	Nesting with 2 fledglings
			2002	Territory inactive
Middle Blue 2000	106716	T7N, R16E, NE ¼ of the NW ¼ of Sec. 30	2000	Nesting with 1 fledgling
			2002	Territory inactive
Upper Blue Creek	GO328	T7N, R16E, SW ¼ of the NE ¼ of Sec. 29	?	?

Northern Goshawk sightings 106715 and 106716 are located adjacent to clear-cut units. Both of these areas contain potentially suitable Northern Goshawk nesting habitat. Therefore, the sites

listed above and the potential habitat surrounding these sites shall be surveyed specifically for Northern Goshawk, prior to operations, in the year of proposed harvest. If a Northern Goshawk nest is found within ¼ mile of harvest operations, protection measures shall be instituted as described below.

Walk-Through Survey for All Raptors Prior to Operations in a Harvest Unit During Nesting Period:

In order to reduce the chance that harvest activities will adversely affect raptors during the nesting period (March through August), field personnel shall perform a walk-through survey of individual evenaged regeneration harvest units shortly before harvest of a unit. This walk-through survey shall include vocal calls for spotted owls, examination of nests for raptor activity, visual searches for whitewash, listening for calls, and any other evidence of nesting raptors in the harvest unit. If field personnel detect raptor presence, they shall take appropriate protection measures discussed below for that particular species. Walk-through surveys are optional when timber harvesting occurs in these harvest units during the non-nesting period.

General Surveys for All Raptors:

To make a reasonable effort to detect raptor presence, field personnel will be alert for any raptor activity during general field work and sale reconnaissance (e.g. property line flagging, sample marking, WLPZ flagging, archaeological surveys, road layout, unit boundary layout and locating retention areas within the unit boundaries). As much work as practicable will be scheduled during the season when young are present, generally mid-May through August, as the probability of discovery is highest during this time. General surveys will include suitable habitat and visually search for nests, whitewash, pellets, feathers and other appropriate raptor sign. Vocal calls will be used to detect the presence of spotted owls.

Procedures upon Discovery of Raptors or Raptor Nests:

Upon the discovery of an occupied nest of any raptor or any unknown large bird, personnel involved with the harvest operation shall suspend vegetation-disturbing activities within ¼ mile of the nest. Activities may resume after the species using the nest is identified, the appropriate measures below and any specified in the California Forest Practice Rules to protect the nest are determined, and implemented on the ground.

Listed Raptors:

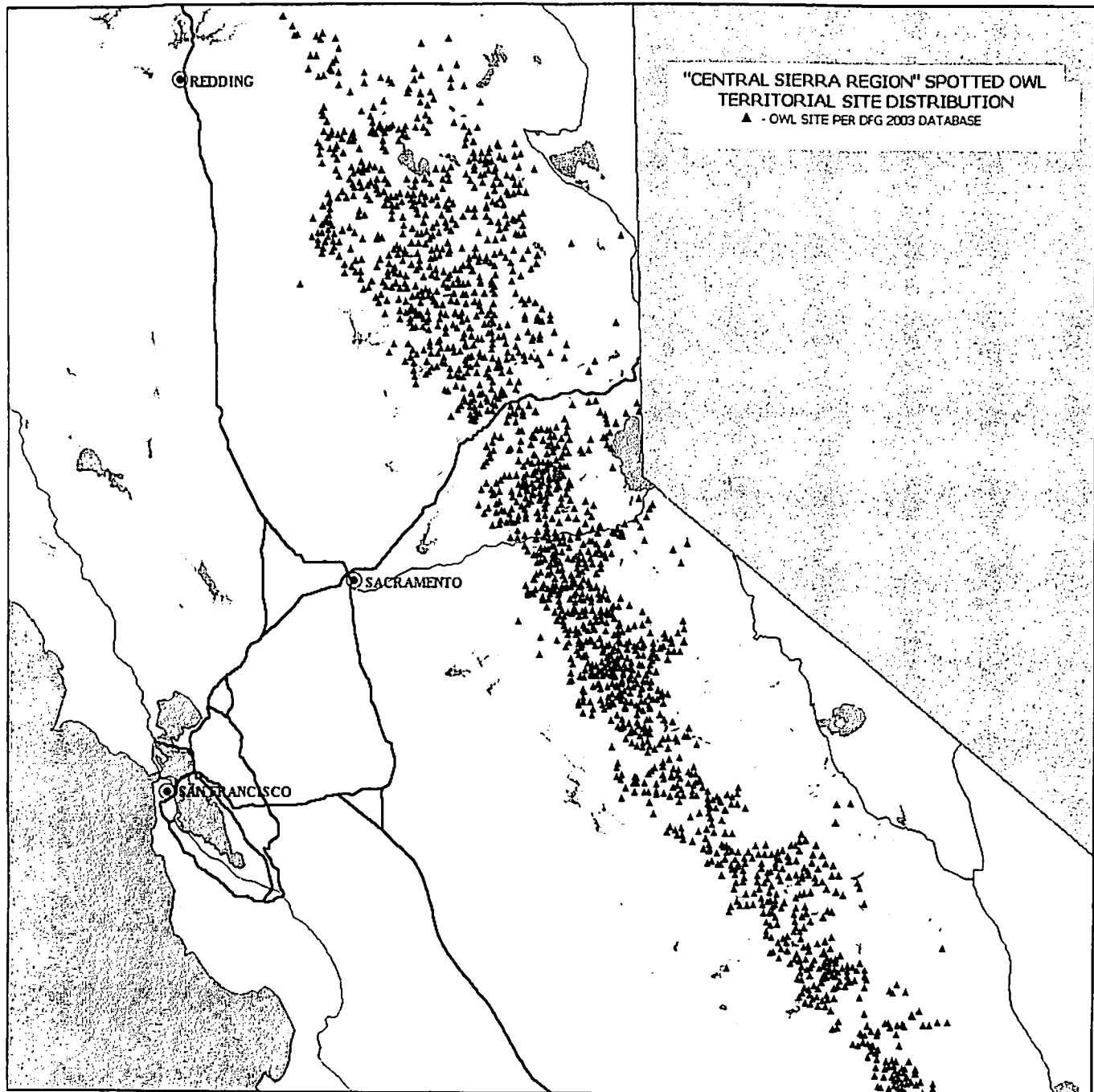
In accordance with Forest Practices Rules, if an occupied nest of a listed bird (ESA, CESA, or Board of Forestry "Sensitive Species") is discovered during timber operations, the timber operator shall protect the nest tree, screening trees, perch trees, and replacement trees. Vegetation disturbing activities will be suspended within ¼ mile of the nest, and the Department of Fish and Game and Department of Forestry and Fire Protection will be immediately notified. In addition, a 375-foot radius buffer will be established within which all timber operations (per PRC Section 4527) will be stopped until a consultation with DFG or the end of the critical period. If necessary, a minor amendment to the timber harvest plan shall be filed that reflects the additional protection agreed to between the operator and the Director of the Department of Forestry and Fire Protection after any consultation with the appropriate wildlife agency.

Non-listed Raptors:

If an occupied nest of a non-listed raptor is discovered during timber operations, the timber operator will immediately protect the nest tree, screening trees, perch trees and replacement trees. Vegetation disturbing activities within ¼ mile of the occupied nest will be suspended until an SPI biologist or forester under a biologist's supervision has determined the appropriate protection measures and has designated nest tree, perch tree(s), screening tree(s), and replacement trees(s), which shall be left standing and unharmed. Since SPI can designate and not cut any trees it so chooses, no amendment to the THP is necessary. If the RPF decides to file an amendment it shall be considered a minor amendment to the timber harvest plan and shall reflect the protection measures implemented.

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California Spotted Owl



California Spotted Owl Distribution in the Sierra Nevada

On February 10, 2003 the USFWS released its decision to not consider further the petition to list the California spotted owl. In their press release they said the following:

SACRAMENTO, Calif. – The U.S. Fish and Wildlife Service announced today that the California spotted owl, a native bird found in forests of the Sierra Nevada, the central coast range, and major mountain ranges of southern California, doesn't warrant protection under the Endangered Species Act (ESA) at this time.

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The Service's action comes in response to a petition filed in April 2000 by the Center for Biological Diversity and the Sierra Nevada Protection Campaign, and a subsequent Federal court order to finish the determination by February 10, 2003. Completing a 12-month review as required by the Endangered Species Act, Service biologists concluded, based on the best scientific and commercial information available, that the overall magnitude of current threats to the California spotted owl does not rise to a level requiring Federal protection.

The California spotted owl still occurs throughout all or most of its historical range. Survey data indicates there are approximately 2,200 sites or territories in the Sierra Nevada and southern California where spotted owls have been recently observed. Investigators have been studying the population dynamics of this owl for more than a decade with mixed results. While some study areas show recent declines, the Service found no clear statistical evidence to show that the California spotted owl is declining throughout its range. Its conclusion was based on the review of several study methods used to identify changes in the population.

"We have based our decision in part because we believe current land management direction on Federal lands (the Sierra Nevada Framework) and long-range timber harvest strategies on commercial timberlands have projected increases in habitats important to spotted owl nesting, roosting, and foraging," said Steve Thompson, manager of the Service's California-Nevada Operations Office. "However, we are keenly aware of several new planning efforts underway by the U.S. Forest Service. Because the outcome of these efforts could substantially affect California spotted owls, we will monitor the development of management direction, offer scientific assistance, and review the effects at a later date, if necessary.

"We recognize there are difficult tradeoffs between short-term effects of fuels treatment on habitat and the long-term reduction of risks to this species as a result of catastrophic fire."

On May 24, 2006, the USFWS issued a second finding regarding the need to list the California spotted owl under the Federal Endangered Species Act (USDI 2006). Again, the USFWS found that listing of the CSO was not warranted and declined to list the species. Within this most recent finding regarding the CSO, the USFWS analyzed the outcome of the new planning efforts described above in the 2003 decision not to list the owl and stated:

"...the best-available data indicate that Forest Service management documents include adequate safeguards to protect spotted owls and their habitat, and fuels-reduction activities are anticipated to decrease the threat of stand-replacing wildfires. Therefore, we are not anticipating declines in spotted owl numbers due to these activities."

In reviewing the federal documents associated with the most recent Forest Service Management Document, the 2004 Framework decision, the USFWS discovered several errors in how the Forest Service scientists evaluated the potential effects of the management plan on California spotted owls (Detrich 2003). Upon discovering these errors, the lead scientist for the USFWS stated:

"In my opinion the strongest information that might have supported a warranted finding was the paper by Hunsaker et al. and the subsequent USFW analysis of habitat that was based on those findings. When I discovered that the USFW and SFWO conclusions based on this paper were unjustified, and then even further, discovered that the statistical foundation of the paper was substantially flawed, no doubt remained in my mind that a warranted finding could

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not be supported with available information." "Thus, in my opinion, there was simply no available information that conclusively supported a finding that the CSO is threatened with extinction in the foreseeable future."

In regards to timber harvest activities on private lands and SPI lands in particular, the USFWS states:

"To summarize, the best-available data indicate that timber harvest as conducted on private lands includes adequate safeguards to protect spotted owls and their habitat."

"Therefore, we do not anticipate that private lands practices will threaten the continued existence of the California spotted owl in the foreseeable future."

This 2006 decision by the USFWS is consistent with and based upon the information and discussion to follow concerning our management of the California spotted owl below.

The following additional information relative to potential impacts on the California Spotted Owl is presented.

- Demographic studies of the California spotted owl do not demonstrate that forest management activities have caused a measurable decrease in habitat quality. Five demographic studies have been ongoing for sufficient time to allow analyses to be conducted. These studies have been on-going for 10-15 years. The most recent and best available science regarding the results of these demographic studies has concluded that the these owl populations are best described as stationary, with little conclusive evidence for either population increases or declines (Franklin et al. 2003, USDI 2003, USDI 2006).
- There is no empirical evidence of a reduction in numbers or distribution of California spotted owls. California spotted owls are widely distributed throughout most of the conifer zone. California spotted owls may be more abundant in some areas of the Sierra Nevada than they were 100 years ago (Verner et al. 1992).
- Apparently, even though the total amount of old-growth forest has been markedly reduced in the Sierra Nevada during the past century, enough very old trees remain today, widely distributed, that the owls do not exhibit major gaps in their distribution that can be clearly attributed to logging (Verner et al. 1992).
- Several "Areas of Concern" regarding the California spotted owl have been identified (Verner et al. 1992). Rather than reflecting current negative effects on spotted owls, areas of concern simply indicate potential areas where future problems may be greatest if the owl's status in the Sierra Nevada were to deteriorate (Verner et al. 1992). Area of Concern #5 was characterized by habitat fragmentation where the concern is that the density of owl pairs may be decreased, and dispersal between territories may be made more difficult. Also, in 1992 Area of Concern #5 was characterized as private in-holdings; owl densities unknown on most private land. This THP lies in Area of Concern #5 and this area has and will continue to have stands types that are known to provide foraging, dispersal and nesting for California spotted owls. The current distribution of harvest and retained intervening stands provides habitat distributions similar to those predicted to be successful in Franklin's study area. See California spotted owl distribution map (above) this area of concern is now know to contain many well distributed owls. This THP provides protection for all known California spotted owl sites through site specific mitigation. This site specific mitigation will prevent any reduction in the density of owl pairs and will not increase the difficulty of dispersing between territories.
- Over 40% of known California spotted owl nests on National Forest land occurred in stands of small sawtimber (trees less than 24" dbh). M2G, M3N/G and R4N/G stands are used as expected by spotted owls for nesting. M4N/G stands are used more than

expected for nesting. More than half of California spotted owl nests on National Forest land have been found in stands other than M4N/G (Verner et al. 1992). This is generally consistent with industry data, which strongly indicate that these owls nest in stands of small sawtimber and do not appear to require old growth for successful nesting. More specifically, they often nest in large individual trees located in small sawtimber stands.

- Nest trees of spotted owls on SPI forestlands average 33.9 inches \pm 13.9 inches diameter at breast height, at one standard deviation. Trees of these sizes are common on SPI's private forest land, currently averaging over the entire land base 9.0 per acre and are expected to increase in both amount and distribution over time as a result of proposed SPI management practices.
- The majority of nest trees of spotted owls on SPI forestland occur in small areas with quadratic mean diameter (QMDs) about 15.6 inches (standard deviation of 2.4 inches), with canopy closures at the nest tree exceeding 90%. Stand conditions adjacent to these small nest sites have an average qmd of about 14 inches (standard deviation 3.26 inches dbh), an average canopy closure of greater than 60%. Such sites used for nesting by California spotted owl occur throughout SPI's private forest land and are likely to increase in amount and distribution in the future under proposed SPI management practices.
- Three of the primary prey species of California spotted owls on SPI's private forest land are the dusky footed woodrat (*Neotoma fuscipes*), Botta's pocket gopher (*Thomomys bottae*) and Mountain pocket gopher (*Thomomys monticola*). All three of these species are known to increase in population and distribution in landscapes with periodic disturbance from logging (Sakai and Noon 1993, SPI - CWHR 1999). All three of these prey species are known to be of importance to California spotted owls (Verner et al. 1992). Studies which find the flying squirrels as the primary prey base are located predominately at higher elevations and likely do not apply well to managed mid and lower elevation conifer forests such as those SPI manages (Verner et al. 1992).
- Recent studies on climate, habitat quality and fitness in northern spotted owl populations in northwestern California and Oregon suggests that the most important habitat characteristic is edge with other vegetation types (other than nesting stand conditions) which produce prey base for the owl, interspersed within the owls home range. (Franklin et al, 2000, Olson et al 2004). The only exception to this finding is in regards to the population of spotted owls within the Lassen Demographic Study Area (Blakesley, 2003 & 2005), where this relationship with edge was not as strongly supported. However, that population of spotted owls exists in true fir forests at higher elevations than generally found on SPI land, is limited to feeding on flying squirrels, and is therefore not directly applicable.
- The Franklin et al. (2000) study also found the most significant factor that can be correlated to both adult and juvenile survival is climate, particularly early spring weather, during the breeding and nesting season.
- The Lee and Irwin (2005) study found that fuels management practices on National Forest land in California were not likely to affect occupancy or reproductive rates of California spotted owls in either short- or long-term time frames, and would likely improve the future condition of the owl population by reducing the adverse affects of wildfire.
- A recent study of geographic variation and genetic structure in Spotted Owls (Haig, et al, 2001) would suggest that the Franklin study is directly applicable due to the genetic similarity between California spotted owl and the northern spotted owl. This is also supported by the fact that both owl sub-species forage on similar prey species, with the woodrat being the dominant forage species within the elevation zones where the majority of SPI lands occur (Verner et al, 1992, Franklin et al. 2000).
- Dispersal habitat for spotted owls has been studied in the past and been found to be comprised of a wide variety of stand and landscape conditions. In the most recent publication regarding dispersal habitat, Forsman et al (2002) found that spotted owls

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would disperse through highly fragmented landscapes. Openings the size of the Willamette Valley in Oregon were barriers to movement, but smaller openings were easily accommodated by both adult and juvenile dispersing spotted owls.

Owl nesting habitat and foraging habitat is likely to remain stable for the foreseeable future and will increase from an average of 20% to over 50% of SPI lands over the planning horizon (SPI Option A, SPI 2008).

The edge effect, recently reported in the Franklin et al study and others as critically important for northern spotted owls, will be produced by this harvest and will be maintained under SPI's long term management. In summary, the Franklin et al study shows that interspersed edge with other vegetation types, (which are highly productive to northern spotted owl prey base species), adjacent to NSO nesting habitat is the optimal habitat. Since the prey species for the California spotted owl (CASPO) in most of our forestlands are the same species as the NSO prey species, and the recent Haig study showing genetic similarity between the owls, it is fair to assume that this NSO result applies to the CASPO as well.

As discussed in detail in the Alternative Silvicultural section, our management will produce more large trees, and there will be more nesting habitat. With the use of evenaged regeneration systems, we will create interspersed types, which meet this species edge need. With our new variable retention policy for the reduction of visual effects of clear cuts we still expect to create increased average tree size and maintenance of the edge effect.

Based upon our current knowledge of this species habitat needs, and the conditions of our forests today, over time our management will improve habitat conditions for the California spotted owl on our land. Post harvest this planning watershed will maintain CSO nesting and other vegetation type edges that represent the medium to high fitness distributions shown in the Franklin et al (2000) research. Spotted owls will continue to successfully disperse between and across watersheds like the forested landscapes that are created and maintained by our management practices. Given this information, our proposed management is unlikely to cause short or long-term significant adverse effects on the habitat available for the California spotted owl.

Comments to the USFWS regarding the current and future status of the California Spotted Owl and available CSO habitat on SPI timberlands:

In response to the USFWS request for information relating to their status review process for the California spotted owl, SPI conducted an analysis of future habitat distributions for nesting habitats on our land. We present that analysis as it may aid in the consideration of potential future impacts from our future management.

General Comments.

First, we must point out that there is little evidence to support the continued separation of the northern and California spotted owls as separate sub-species. Past genetic studies have not been able to demonstrate any genetic differences between these two owls that rise to the level of describing different sub-species (Barrowclough and Gutierrez 1990). The most recent work on the genetic make-up of the three spotted owl sub-species also did not find significant differences between the northern and California spotted owls (Haig et al. 2001). Haig et al. (2001) states:

"Our analyses did not provide support for separation of California and Northern Spotted Owls. Indeed, field biologists cannot differentiate them in areas where the 'subspecies' interact (i.e., the Klamath region). Merging the Northern and California subspecies based on morphological similarities was suggested by Oberholser (1915) but was twice rejected by the American Ornithologists Union (1931, 1957). However, there have been no morphological, plumage, allozyme or RAPD data presented that suggest significant differences among these classically defined subspecies. Taken together, these factors do not support the subspecies criteria proposed by Avise and Ball (1990). Using their criteria, evidence for subspecies must come from concordant distributions of multiple, independent, genetically-based traits – which we do not find in Spotted Owls."

After further discussion, Haig et al. (2001) went on to state:

"Thus, separate ESU designation for California and Northern Spotted Owls is not warranted."

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Given the lack of genetic and morphological differences between the northern and California spotted owls, the current separation between these two spotted owls should not be given credence when conducting assessments of population viability, habitat use, threats to their populations or habitat, or when conducting status reviews under the Federal Endangered Species Act. The populations of the northern and California spotted owls are essentially continuous, expressing only clinal variation across the range from the north coast of Washington to the southern Sierra Nevada Mountains (Haig et al. 2001).

Within this range, at least 8000 pairs of spotted owls are known to exist, interconnected physically and genetically. This large population contains a high degree of adaptability, as expressed by the wide variety of habitats they utilize. These habitats range from the rainforests of the Pacific Northwest to the oak woodlands of the Sierra Nevada. These owls are opportunistic hunters, successfully utilizing a prey base dominated by low-density populations of flying squirrels (Olympic Peninsula, high elevation areas) to high-density populations of gophers (Wenatchee National Forest) to high-density populations of woodrats (California Coastal, Klamath and Sierran forests). Spotted owls in all areas are known to supplement their diet of these primary prey species with a wide variety of nocturnal, diurnal, and crepuscular prey species. This adaptability in habitat use and prey variation across the range from Northern Washington to Southern California is a key factor in their continued viability.

Current and Future Amounts of Nesting Habitat on Sierra Pacific Ind. Lands in the Sierra Nevada

SPI has collected data regarding successful spotted owl nest trees, nest sites, nest stands and nesting landscapes as they occur on SPI land. Data presented here was developed from a sample of 42 successful spotted owl nests. A successful nest is one where one or more spotted owl young have fledged over one or more years.

Nest sites are defined as the area within 115 feet of a successful nest tree. This area is sampled using a plot design developed by Bruce Bingham of the USDA Forest Service Pacific Southwest Research Station and Malcomb Pious of Louisiana Pacific Corporation. This sample produces high quality estimates for the acre nearest the nest tree.

Nest stands are defined as the area within 500 feet of a successful nest tree. Using our grid based resource inventory system; nest stands are sampled by 4 to 5 inventory sample plots we establish within this 18 acre area.

Successful spotted owl **nest trees** on SPI's land average about 34 inches in diameter at breast height (dbh), with a standard deviation of 13.6 inches. These **nest trees** occur within **nest sites** that have a quadratic mean dbh (qmd) of about 15.5 inches and a standard deviation of 3.6 inches. **Nest sites** have average canopy closures of about 90% and contain an average of 23 trees per acre (tpa) of trees that are greater than or equal to 22 inches in dbh (standard deviation of 13 tpa). They have an average basal area of about 227 sq. ft/ac (std. dev. 84 sq. ft/ac). Most nest sites do not contain any trees greater than or equal to 36" dbh.

These **nest sites** occur in **nest stands** that have an average qmd of about 14 inches (standard deviation 3.26 inches dbh), an average canopy closure of greater than 60%, at least 17 tpa that are greater than or equal to 22" dbh (std. dev. 11 tpa), and an average basal area of about 160 sqft/ac (std. dev. 58 sqft/ac).

These **nest site** and **nest stand** data sets should give the Service insight as to why Verner et al. (1992) found from 55-68% of all known nests in forest stands which were not identified as being the "select" stratum. Our data sets show there are significant differences at the one-acre level as compared to even the nearest 18 acres. The Verner team noted that when one visited these nests, they found them to be in small pockets of nesting habitat contained within the forest stratum. Yet, rather than recognize that this small-scale inclusion of pockets of nesting habitat in other strata is the norm for forest stratification, the CASPO team chose to ignore the fact that the preponderance of the nests were in stands which didn't meet their "select" stratum. If they had not ignored this fact, they would have had to recognize that almost all timber strata have inclusions of nesting habitat and thus should be determined to be available for nesting.

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Sierra Pacific Industries maintains an inventory of our ownership that consists of data collected from plots with a density of 1 plot every 4 acres. This equates to a total of over 300,000 plots, the majority collected within the last 5 years. Using the above nest site and nest stand data (average \pm 1 std. dev.) to describe successful nest sites on SPI land, we can determine the percent of land that currently supports nesting habitat for spotted owls. We present this data at several levels for SPI lands: across the entire range of the spotted owl (in the Cascades and Sierra Nevada south of Highway 299), from four large sample areas and at the planning watershed scale. In addition, using this nesting habitat description coupled with our proposed management and appropriate forest growth models, we can predict the trend in the amount of nesting habitat that will occur on SPI land over the next 100 years. SPI provides this projection based on compliance with the current California Forest Practice Act Maximum Sustained Production (14 CCR 933.11 and 953.11) regulation and other regulatory constraints. This inventory and projection provides an accurate assessment of our current and future ability to provide nesting habitat for the spotted owl in the Cascades/Sierra Nevada area.

This sustained yield requirement of the California Forest Practices Act was enacted in 1995 and therefore was not considered as part of an "in-place regulatory mechanism" that protects species, when the status review team considered the NSO in 1990. The California Department of Forestry and Fire Protection has oversight and enforcement responsibility for the California Forest Practice Act. If SPI deviates by more than 10% from the projected management scheme, CDF has the authority to decline future timber harvest permits. If the landowner chooses to pursue an alternative management strategy, he must submit for review another plan and demonstrate that it is feasible and that it takes into account necessary protections of listed and non-listed species.

Ownership Wide CSO Nesting Habitat Analysis

SPI currently manages about 938,929 acres of forestland within the CSO range in the Cascades/Sierra Nevada. (See Figure 1 below) The lands predominately lie in the lower elevation ranges of Sierra Nevada with 84% below 6,000 feet. This land lies in 488 separate State Planning Watershed (PWs). Currently, SPI's property within this area, calculated from stand data created from our plots and reported over this entire area, is comprised of over 25 percent nesting habitat (ie. meets the habitat structure found within the nest site) for spotted owls (Table 1). The percent of SPI land providing spotted owl nesting habitat is projected to increase to 30-35% within 10 years and remain relatively stable until current plantations begin to meet the definition of nesting habitat in about 50 years. This means that, over the next 50 years, more than 90% of the projected nesting habitat is provided by timber stands that exist on our land today, not from stands created through our efforts to rehabilitate these forestlands through even-age management techniques. This planned management is also designed to produce stands in the future that are more fire resistant and stands that resemble the large tree and more open forest conditions that predominated in the Sierra prior to European influences.

Table 1. Current and Future (Projected) Percent of SPI Land That Supports Spotted Owl Nesting Habitat.
Represents all SPI lands within the Range and within the 4 sample areas.

	Years From Present (Base Year 1999)										
	Present	10	20	30	40	50	60	70	80	90	100
Total Range	25.38%	34.33%	37.29%	35.07%	34.78%	39.98%	49.92%	58.28%	60.87%	58.88%	53.13%
Sample Areas	24.92%	37.85%	41.79%	35.59%	35.30%	45.04%	57.31%	62.40%	63.04%	59.51%	51.92%

The map displays the Sacramento-San Joaquin River Delta region. Four specific study areas are highlighted with black outlines and stippled shading: North Lassen (top left), Feather Falls (center left), Camino (center right), and Martell (bottom right). Major waterways are shown as solid lines, including the Feather River, Yuba River, and Sacramento River. Numerous cities and towns are labeled throughout the region, such as Marysville, Yuba City, Marysville, and Sacramento. The map also shows various smaller creeks and rivers, such as the Feather River, Yuba River, and Sacramento River.

Large Sample Area CSO Nesting Habitat Analysis

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the dark highlighted areas in Figure 1). These four areas were chosen as they reflect the distribution of conditions that currently exist on SPI land. These four sample areas total about 277,400 acres, or 27+% of the area managed by SPI in the Cascades/Sierra Nevada area. As is evident from Tables 1 and 2, these sample areas closely approximate the entire ownership percent of the area that supports spotted owl-nesting habitat, now and into the future.

Table 2. Current and Future (Projected) Percent of SPI Land That Supports Spotted Owl Nesting Habitat, averaged at the watershed level.

	Years From Present (Base Year 1999)										
	Present	10	20	30	40	50	60	70	80	90	100
North Lassen	4.76%	20.00%	27.35%	22.29%	14.94%	14.67%	27.22%	40.20%	48.41%	51.26%	43.59%
Feather Falls	22.41%	25.00%	38.12%	33.07%	36.06%	53.65%	65.43%	71.62%	67.51%	62.24%	56.72%
Camino	27.49%	46.05%	48.97%	40.54%	45.33%	59.30%	69.03%	72.33%	70.93%	64.90%	59.82%
Martell	41.13%	51.34%	48.95%	43.47%	42.39%	52.68%	67.40%	66.93%	65.60%	59.94%	48.93%

Descriptions of the Sample Areas

The northern-most sample area, North Lassen, starts just north of Highway 44 and runs south to Hwy 36. It ranges in elevation from 2,160 to 6,640 feet (with 99% below 6,000 feet) and encompasses about 71,700 acres, contained within 15 PWs. This area currently holds the least amount of spotted owl nesting habitat (as a percent of the area) that exists on lands managed by SPI. This area also currently supports the least number of breeding pairs of spotted owls on a per-unit-area basis. As is evident in Table 2, the amount of nesting habitat is projected to increase from about 5 percent to over 27 percent over the next 20 years and will never be less than 3 times the current amount. Approximately 98 percent of SPI land in the N. Lassen area exists in 12 PWs where SPI manages at least 1000 acres and at least 10% of the PW.

The Feather Falls sample area (see Figure 2) lies east of Oroville, ranging in elevation from 1,040 to 5,860 feet (with all below 6,000 feet), and comprises about 40,200 acres. It is contained within 16 PWs. Within SPI managed lands, this area is intermediate in the percent that is spotted owl nesting habitat. This area also supports an intermediate level of spotted owl breeding pairs. Again from Table 2, this area increases in the percent that is spotted owl nesting habitat over the next 20 years from 22% to over 38% and is not projected to fall below 33 percent nesting habitat in the future. Approximately 91 percent of SPI land in the Feather Falls area exists in 9 PWs where SPI manages at least 1000 acres and at least 10% of the PW.

The Camino sample area lies north of Hwy 50 in El Dorado County. It ranges in elevation from 1,280 feet to 7,920 feet (with 89% below 6,000 feet) and comprises about 83,300 acres. It is contained within 40 PWs, with 92% of the SPI acreage in 24 PWs where SPI manages at least 1000 acres and at least 10% of the PW. Table 2 indicates the Camino area has 27% spotted owl nesting habitat (an intermediate level). This area is known to support an intermediate number of breeding pairs of spotted owls. This area is projected to increase in percent nesting habitat to between 35 and 50 percent nesting habitat over the next 20 years and to never support less than the current level of nesting habitat.

The Martell sample area is split between Amador and Calaveras Counties. It ranges in elevation from 1,960 to 8,160 feet (with 96% below 6,000 feet) and comprises about 82,000 acres. It is contained within 34 total PWs, with about 94% of SPI land contained in 21 PWs where SPI manages at least 1000 acres and at least 10% of the PW. Table 2 shows Martell has 41% spotted owl nesting habitat, a level that is at the upper bound of the SPI samples. This area is known to support a relatively high number of breeding pairs of spotted owls. This level of nesting habitat is projected to increase to about 45-50% over the next 20 years and to remain relatively stable at that level into the future.

Planning Watershed CSO Nesting Habitat Analysis

As an additional habitat distribution test, within the 4 larger sample units, we reviewed the nesting habitat distribution at the State Planning Watershed level. The sub-sample at the operational planning level is demonstrated for the Feather Falls sample area in Figure 2 below. All PWs were included where SPI manages at least 1000 acres and at least 10% of the PW. The result of this detailed analysis is that 88.1% of the individual PWs repeat the overall trend of increasing amounts of nesting habitat for the next several decades followed by maintenance of nesting habitat as a relatively high percent of each PW into the future.

**SPI Ownership and Associated Planning Watersheds within Feather Falls Sample Area
of the CSO Range in the Northern Sierra Nevada**

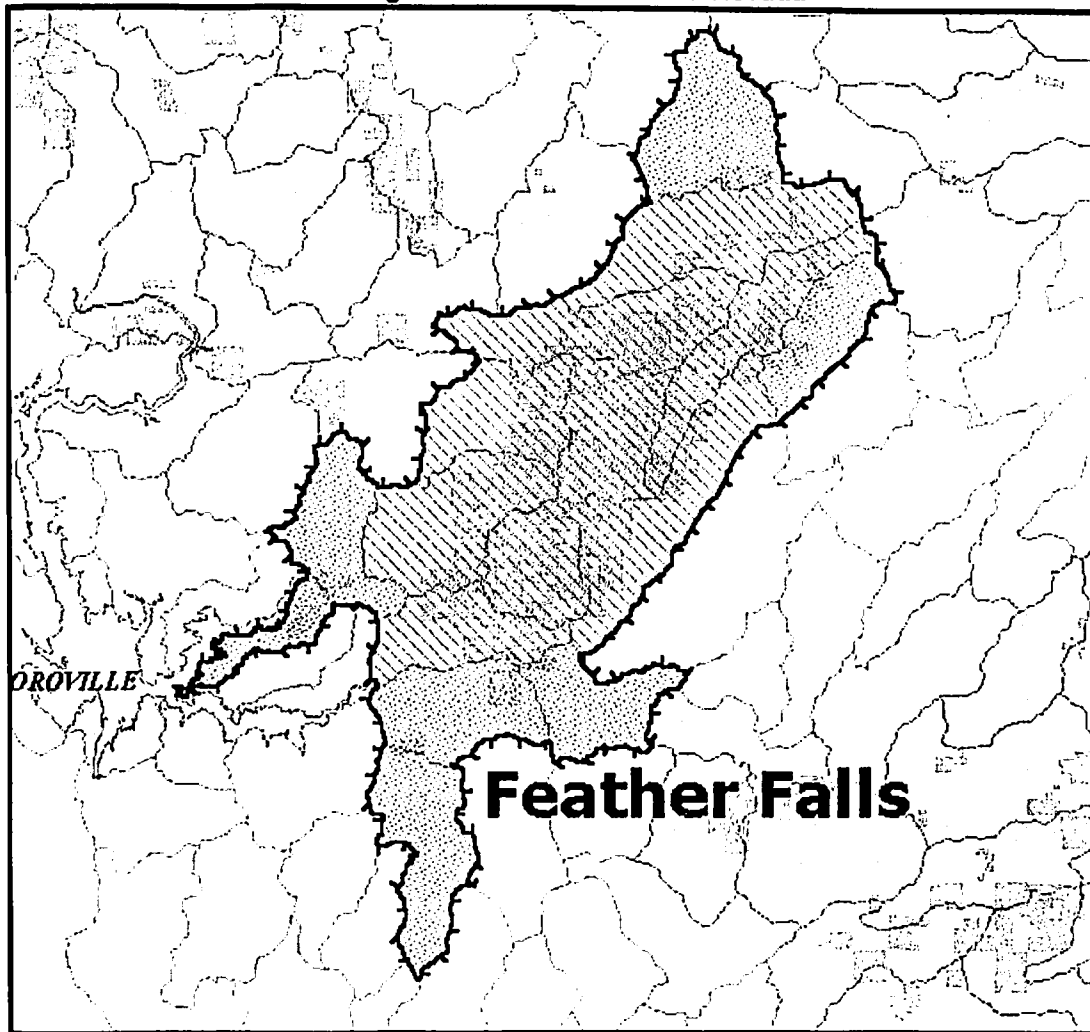


Figure 2

Note: In the Feather Falls sample area, data from the diagonal crosshatched watersheds were included in the planning watershed analysis averaged and presented in Table 2. The SPI lands included in the dimpled pattern PWs were included with the crosshatched lands in the total sample areas and in the CSO range-wide analysis from Table 1. In the sub-sampling of the 4 sample areas, in order to accurately detect real changes in the habitat quality, the sub-sample of planning watersheds tested were those where SPI manages at least 1000 acres and at least 10% of the planning watershed.

Summary CSO Nesting Habitat Analysis

As can be seen from Tables 1, 2, and the above discussions, nesting habitat on SPI land within the Cascades/Sierra Nevada region is a significant and well-distributed component of the landscape. Current inventories of spotted owl breeding pairs closely follow the pattern of percent nesting habitat: areas with little nesting habitat support few pairs of spotted owls; areas with intermediate amounts of nesting habitat support intermediate number of owl pairs; and areas with relatively high amounts of nesting habitat support relatively high numbers of owl pairs. Projected into the future, our planned management generally provides for a well-distributed and relatively consistent increase in the percent of our land that provides nesting habitat for the spotted owl. SPI is providing for a stable to increasing nesting habitat amount and distribution over our land base for the foreseeable future.

Conclusion

We believe that our management will move our forestlands to a condition that is more suitable for the spotted owl than that which exists today. Much of our land is currently supporting high levels of spotted owl nesting habitat-- we will maintain that high level of habitat while increasing the amount of nesting habitat in areas that currently support lesser amounts. While creating and maintaining this nesting habitat, we will be increasing the diversity and abundance of prey for the spotted owl by creating and maintaining a mix of habitats (from early seral to spotted owl nesting habitat) within each State Planning Watershed where we manage land. This, in effect, will move our lands closer to the conditions described by Franklin et al. (2000) and found to provide for the highest level of population fitness measured. Our management is not a threat to the continued existence of the spotted owl. We currently provide for significant levels of spotted owl nesting and foraging habitat. In addition, this contribution to spotted owl habitat will continue to improve into the foreseeable future, as we provide wood products from our land.

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Snags

Snags are an essential resource for many wildlife species. In order to retain an adequate number of snags on its land to maintain healthy populations of wildlife species that rely on snags for shelter, nesting opportunities and foraging, Sierra Pacific Industries has developed snag management objectives to be incorporated in its forest management activities (Self, 2000). Snags are usually defined as either hard snags; snags composed primarily of sound wood with some or most of their branches and bark still present or soft snags, snags composed primarily of wood in advanced stages of decay and deterioration (SAF, Dictionary of Forestry, 1998). Soft snags generally have few branches remaining and loose bark.

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Wildlife species which use snags can be divided into two distinct categories: primary cavity users, which excavate their own cavities, and secondary cavity users, which use holes abandoned by primary cavity users, natural cavities, cracks, and spaces between bark (USDA, 1979; Raphael and White 1984, CDFG 1999). Sierra Pacific Industries snag management objectives are based on first determining the primary cavity using species on our timberland and their habitat preferences, then calculating the number of snags in each diameter class needed to provide maximum (100%) habitat capability. The percentage of maximum habitat capability (snags/acre) is broken down into three snag size classes, snags > 11 inches dbh, snags > 15 inches dbh, and snags > 24 inches dbh. In choosing a level of snag habitat capability for which to manage, it is important to note researchers have stated that providing less than approximately 40% of total habitat capability could present an unacceptable risk to cavity using wildlife species (USDA 1979, Raphael and White 1984). Sierra Pacific Industries snag management objectives are to retain enough snags to provide more than 50% of maximum habitat capability levels for cavity using species in the biological assessment area. The numbers of snags to be retained per acre for habitat capabilities between 50% and 100% are presented in the table below:

	Percent of Maximum Habitat Capability (snags/acre)					
	50	60	70	80	90	100
Total number of snags > 11" dbh	1.59	1.91	2.22	2.55	2.86	3.18
Total number of snags > 15" dbh	1.59	1.91	2.22	2.55	2.86	3.18
Total number of snags > 24" dbh	0.02	0.03	0.03	0.04	0.04	0.05

In the biological assessment area for the proposed plan, snag data was compiled and reviewed from over 400 CTMS (Continuous Tree Management System) plots on Sierra Pacific timberland. The data indicate snag densities are: 5.53 snags per acre > 11 inches dbh and this exceeds the 100% of maximum habitat capability, 2.17 snags per acre > 15 inches dbh and this exceeds the 60% of maximum habitat capability, and .80 snags > 24 inches dbh which also exceeds the 100% for maximum habitat capability. In all three snag diameter classes on SPI property and within the biological assessment area, are currently within the target conditions by exceeding the 50th percentile for habitat capability. In addition, the vast majority of the remaining acreage within the assessment area—especially those areas north and east of the proposed THP-- are managed by the U.S Forest Service. Because of management constraints, many of the snags on Forest Service property, which are evident within the biological assessment area have not been harvested or disturbed. The exception are the snags along permanent Forest Service Roads and power line right-of-ways. Most Forest Service areas contain over-mature stand conditions (which, in turn, results in excellent snag retention and recruitment areas). Visual inventory of the snags on U.S. Forest Service land indicate that ample snags are available on these lands, and that the snags are of sufficient size and quality to provide shelter, nesting opportunities and forage to a diversity of wildlife species..

With respect to this plan, additional snags are evident throughout the THP area. As many snags as possible will be left for wildlife, and will be protected during timber operations. The LTO will be instructed to protect these trees to the greatest extent possible, given operational and safety considerations. Many snags will be marked with a W, to denote that protection is warranted. Additionally, many large trees in the area show obvious signs of internal decay (denoted by the presence of conks, or vegetative fruiting bodies of decay fungi on the boles). These trees will provide future snags when they die, and a number of these trees will be marked with a WL for protection also.

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Oaks

Oaks are in abundance over the entire plan area. The SPI CTMS inventory system shows approximately 22% of the total basal area, or an average of 26 sq. ft. basal area per acre, occurs in oaks. Per FPR 959.15 (a), every attempt will be made to retain any oaks present within the plan area. Some of these oaks may be located in "Wildlife Retention Areas" within regeneration units, where the oaks, in conjunction with other wildlife attributes such as snags and protective and thermal cover, will protect wildlife resources which also use oaks for mast production. Specific criteria for the selection of WRA's are listed in Section II of the THP.

Hardwood cover varies throughout the watershed and Biological Assessment Area(BAA). Portions of the BAA that are lower in elevation appear to have a greater percentage of hardwood cover than is exhibited within the plan area, while portions of the BAA that are higher in elevation appear to have a lower percentage of Hardwood cover than is exhibited within the plan area. The proposed plan will not change the available hardwood cover within the BAA and will not have a negative cumulative effect on this resource

Late Seral

There are no late successional or old growth forest stands within the THP area, either harvested or non-harvested, as defined by the Director and the State Board of Forestry. Late Seral (Mature) Forest Characteristics elsewhere within the BAA is not accurately known; none exist within the SPI owned portion of the BAA. The proposed plan will not change the available Late Seral (Mature) Forest Characteristics within the BAA and will not have a negative cumulative effect on this resource.

Conclusion To Biological Section

It is concluded that when considering the silvicultural prescriptions proposed, NDDB output, and the other methods of evaluation discussed above that timber operations will not negatively impact biological resources. Habitats are likely to be altered in some manner when trees are removed from the plan. However, when considering the overall management objectives of this plan, wildlife habitat maybe enhanced over time as a result this and subsequent plans.

RECREATION

Rationale for selection of the recreation assessment area:

As per guidelines in Technical Rule Addendum #2, the project area plus the 300 ft. surrounding area the project was selected as the assessment area.

The recreation assessment area consists of the plan area and 300 feet beyond the plan boundary. Fishing, hunting, hiking, boating and other day use activities are permitted on all Sierra Pacific Industries timberland with one exception. Sierra Pacific Industries does not permit overnight camping within its' ownership.

This project through its' silvicultural methods, logging methods, watercourse and watershed mitigation's and protections should enhance the quality of habitat for both non-game and game species, which may improve the fishing, hunting, and wildlife viewing components of outdoor recreation.

It is concluded that the timber operations will not significantly impact legal recreational uses and concerns.

VISUAL

Visual assessment area selection rationale:

As per Technical rule Addendum #2, the logging area that is readily visible to significant numbers of people who are no further than three miles from the timber operations.

The visible area is not entirely within the WAA, however it is likely that nearly all of the visible area is. The very small "windows" where the Visual assessment area may breach the boundaries of the WAA cannot be accurately identified on a map. Thus creating a map will not add clarity to the

assessment area. For the purpose of assessment the Visual Assessment Area shall be contained entirely within the BAA.

Due to the mountainous topography there are virtually no vantage points from afar which make this plan readily visible to a significant number of people. There are no visual vantage points from any public roads or places in respect to the plan area on this THP.

Within the Clearcutting silvicultural systems, most of the openings will be less than 20 acres each. However there is one unit where a 26 acre cable yarding unit will utilize the Clearcut silviculture system. Retention Areas, pockets of advanced regeneration, and individual oaks that are retained will help to reduce visual impacts from these openings. Furthermore, the planting of fast-growing conifer seedlings in a site-prepared unit will result in a rapid growth of these trees, which will significantly ameliorate visual impacts after only a few years.

Some of the units will be visible to those passing along Winton Road (Private) but due to the topography and the timbered stands between Winton Road and the unit it is not likely that a visual impact would occur. Units 334 & 335 may be partially visible to the part time residences (summer cabins) located within section 22. Additionally the road that accesses the part time residences passes through unit 337. There are no Special Treatment Areas designated as such by the Board because of their visual values.

It is concluded that the timber operations will not significantly impact the visual concern.

TRAFFIC

The traffic assessment area includes the private and public roads leading from the THP to the mill sites. The existing private and public roads have a history of log truck traffic. The assessment area was chosen in order to evaluate the potential for cumulative impacts upon the existing transportation network. The road that accesses the part time residences passes through unit 337.

The traffic assessment area involves the first roads not part of the logging area on which logging traffic must travel. For the proposed plan this would be Winton Road and Highway 26. From there, the haul is east on the Highway 88 to secondary roads and onto the company sawmill in Camino or west on Highway 88 to Highway 49 and onto Chinese Camp, Sonora or Lincoln.

These haul routes have historically supported logging traffic, which has been moderate throughout the year. The hauling operations of this THP will not change the normal traffic loads along these routes. No known existing traffic or maintenance problems are identifiable as per Technical Rule Addendum No. 2.

It is concluded that the hauling operations will not significantly impact the traffic concern.

Mokelumne Watershed 5 Year Plan 2008-2012

Year 2008

THP Name	Acres	Location T-R, Sec.	Yarding Method
Mokey East	1470	T5N R15E: 2,3,4,5,8,9,10 & T6N R15E: 27,33,34,35,36	90% Tractor / 10% Cable
Mokey West	1074	T5N R14E: 12,13 & T5N R15E: 4,5,7,8,9,18 & T6N R15E: 33	90% Tractor / 10% Cable
Spur 11	406	T7N R16E: 21,22,23,27,28 &	100% Tractor
Section 16	184	T7N R16E: 16	100% Tractor
Mitchell Mills	1,079	T6N R14E: 13-17,20-24,26- 28, 35	95% Tractor / 5% Cable

Year 2009

THP Name	Acres	Location T-R, Sec.	Yarding Method
Airola	869	T6N R15E: 25,26,27,35,36 & T6N R16E: 9,10,16,17,19-21,29-31	95% Tractor / 5% Cable
Swamped	549	T6N R15E: 14,15,20-23,27-29, 32, 33	100% Tractor
Squiggly	438	T7N R15E: 13,14,15,22,23,24,26,27 & T7N R16E: 19,30	90% Tractor / 10% Cable
South Rim	1,768	T7N R14E: 13-16, 19-21,23,24,29,30	35% Tractor / 50% Cable 15% Helicopter

Year 2010

THP Name	Acres	Location T-R, Sec.	Yarding Method
Doaks West	252	T8N R14E: 33,34 & T7N R14E: 3, 4, 9	100% Tractor
Whitmore Grade	475	T7N R13E: 1,2,12,13 & T7N R14E: 6,7 & T8N R13E: 36	100% Tractor
Spur 13	250	T7N R15E: 35,36,31 & T6N R15E: 2	95% Tractor / 5% Cable
Spur 6	400	T7N R15E: 16,17	60% Tractor / 40% Cable

Year 2011

THP Name	Acres	Location T-R, Sec.	Yarding Method
Lost Soul	160	T7N R16E: 28,27	100% Tractor
Hams	250	T8N R14E: 13,24-26,35,36 & T8N R15E: 18,19,30	90% Tractor / 10% Cable

Year 2012

THP Name	Acres	Location T-R, Sec.	Yarding Method
Solinsky Beta	225	T6N R15E: 12, 13 & T6N R16E: 7-9, 17, 18	90% Tractor / 10% Cable
Calco	375	T6N R14E: 11-14	
Tiger Creek	300	T7N R14E: 4, 9 & T8N R14E: 26, 27, 33-35	100% Tractor
Bear Creek	270	T7n R14E: 14, 15, 21-24, 27	100% Tractor

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CEQA ANALYSIS OF THE POTENTIAL USE OF HERBICIDES ASSOCIATED WITH EVENAGED REGENERATION OF THIS THP

Overview

While the actual use of a particular herbicide is not certain, some herbicide use is a reasonably foreseeable outcome of evenage timber harvesting. Sierra Pacific Industries may apply herbicides on average once or twice per stand during the 80 year life of a timber stand. In our routine reforestation efforts, Sierra Pacific Industries does not use insecticides. Mainly, herbicides are used to temporarily retard the growth of brush and weeds that compete with conifers for nutrients and sunlight while the conifers are young. This use mimics and accelerates the natural progression of growth in a timber stand, which will at some point experience a conifer breakthrough and development of a conifer overstory.

At the present time, it is not possible to predict (without speculation) which herbicide, in which area, in which concentration, at which time will be used, if at all. Whether applied prior to harvest or after, once trees are removed from a given area, it is impossible and or infeasible, to speculate which herbicide will produce the desired result. For example, current technology provides no way to know which brush or weed seeds are lying dormant in the soil, and it is impossible to predict which and when any particular combination of future environmental conditions will cause various brush and weed species to sprout post harvest. In any given area of harvest, dramatic differences in weeds and brush may be exhibited from year to year. For example, at a particular time post-harvest there may be a heavy appearance of grasses and bear clover, followed the next year by a totally different mix of bracken fern, thistle, mullen or lupine. Different herbicides have different effects on different species and until we see what happens and make a determination about whether herbicides will be needed, we can only speculate. We simply do not know enough about these factors to be able to predict what will occur. In past reforestation efforts, depending on many factors, we have used imazapyr, triclopyr, hexazinone, glyphosate, and atrazine.

Predicting specific preharvest herbicide use is equally fraught with unforeseeable variables. In a perfect world, harvest location and timing would be predetermined years in advance. On the contrary, harvest scheduling is often a very fluid process both from season to season and during any single operating season. The availability of timber from other private landowners and/or the National Forests often influences where and when timber harvests from company lands are carried out. The frequency and location of large catastrophic fires in recent years has also had a significant impact on the timing of timber harvests from company lands. Other variables include the availability and timing of new products, techniques, and technology. In any case, speculating on either preharvest or post harvest herbicide treatment years in advance of THP operations is not a prudent land management decision. Regardless of timing, whether pre-harvest or post-harvest application, the use of herbicides requires careful site-specific evaluation and timing to yield the best results. The importance of the site specific analysis "at the time of potential herbicide use" can not be understated, and is the system that the California legislature has designed and implemented in law for the effective protection of the environment, and to allow for the responsible and appropriate use of herbicides. That is why the licensed pest control advisor is required "at the time of application" to write a site specific prescription which not only identifies the target pests, the appropriate herbicide, this prescription also specifically requires the necessary mitigations to protect the environment.

Herbicides that might possibly be used in reforestation have been the subjects of extensive testing and research under a certified regulatory program under CEQA administered by the Department of Pesticide Regulations (DPR). Through this functional equivalent process, DPR has determined that a herbicide, if used as prescribed on the label will not have a significant impact on the environment. The term label is misleading as they are booklets up 30 to 50 pages in length. The testing and research includes evaluation of conditions under which the herbicides may be applied for various uses including forestry, yard & garden, agricultural field crops,

orchards, vineyards, pastures and right-of-ways. The active ingredient of a given herbicide can be registered and labeled for use under one or more of these categories. Herbicide use on SPI's forested property requires a written recommendation by a licensed Pest Control Advisor (PCA) and application by a licensed Pest Control Operator (PCO).

Forest application of herbicides may occur on average once or twice on any given forest acre, over a period of 50 to 80 years. Use and application are conducted by licensed pest control advisers and pest control applicators. In a forest setting, professional application in a workmanlike manner is required for maintenance of a license, and hence future employment is in jeopardy if compliance is not achieved. Also, license renewal requires 20 hours/year of continuing education. In forest use, application of herbicides is not intended to kill or eliminate entire populations of the targeted species. We wish to encourage a healthy understory as a beneficial environment for the varied species of plant and animals that utilize our forests. In fact, our professional foresters and pest control advisers have noticed that areas that have been sprayed in the past actually have greater diversity of plant and animal life than those areas that have not been sprayed. This professional opinion is supported by research conducted by University of California research and by SPIs' in process plantation diversity study detailed below in this discussion (DiTomaso, 1997). SPI is conducting a plantation species diversity study which will be discussed later in this analysis.

The DPR regulatory program is a functional equivalent of an Environmental Impact Report (EIR) certified by the California Secretary of Resources pursuant to PRC Section 21080.5. The DPR regulatory program is designed to study and test pesticides and mitigate potential environmental effects by the totality of the registration, label and commercial application control processes. These processes include the US EPA label (which is a binding legal document) that prescribes limitations on use and mitigations for proper use. California may add additional restrictions beyond the EPA label and does so through the classification of an EPA labeled pesticide as a California "restricted pesticide". California's DPR process also requires additional site-specific analysis, before any commercial application of pesticides (including herbicides). The analysis takes the form of a written recommendation for herbicide use prepared by a licensed pest control advisor. Finally, this program requires that the application of any pesticides be done by licensed qualified applicators. When a pesticide is registered in California it has been determined through thorough, detailed testing and analysis (building upon the US EPA testing) that if applied according to the label restrictions there will not be significant adverse impacts upon the environment.

Nevertheless, we also wish to voluntarily provide information to inform the public because mere controversy and public concern may necessitate a CEQA discussion of possible impacts of concern even where the best science indicates a very low probability that significant impacts exist. We undertake to analyze and consider herbicide use within this THP area to the maximum extent feasible given the obvious constraint that such activity is remote in time, speculative and not susceptible to accurate description because future circumstances will dictate the extent, method and quantity of application assuming herbicides are used at all. The combinations of variables (timing, weather conditions, herbicide to be used, application method and amount, site specific location, etc) would lead to thousands of potential combinations and wasted speculative analysis that CEQA does not require (PRC Sec. 21083 and 14 CCR 15145). Moreover, such speculation is especially unnecessary because the use of specific pesticides has already been determined under DPR's functional equivalent program to eliminate significant adverse impacts upon the environment. Under CEQA, when a lead agency has already conducted an EIR (or functional equivalent), another lead agency is not required to repeat the environmental analysis conducted by the lead agency (DPR) (CCR 15162). However, out of an abundance of caution, we undertake a discussion of what is known about herbicide application related to harvest because CDF approves THP's, and it is known that some spraying may be associated with even-aged forest regeneration prior to and/or after harvest, and the public has expressed environmental concern at various times. After an even-aged harvest allowed by a THP, trees are planted. Sometimes before and/or after planting, often years, these young trees may be aided by herbicide application designed to suppress competing vegetation until the young conifers can overtop the competition and this creates the association between harvesting and the ultimate spraying of an herbicide.

Integrated Vegetation Management

Sierra Pacific Industries employs an Integrated Vegetation Management (IVM) program to achieve our vegetation management goals. Integrated Vegetation Management attempts to optimize desired resource values through the combination of physical, cultural, biological, and chemical methods of vegetation management. IVM encourages all of the management methods available to our professional foresters. It is employed by forestland managers nationwide and is supported by training sessions, conferences, and continuing education programs.

Within the IVM program, physical vegetation management methods include manual, mechanical, and prescribed fire techniques. Cultural methods include encouraging native plant and wildlife species by seeding, replanting, and fertilizing desirable plants. Biological vegetation management includes grazing, where appropriate, along with the release of insects and fungi that attack exotic weeds.

Integrated Vegetation Management also includes the judicious use of herbicides to prepare a site for burning or planting, minimize resprouting brush, release conifers to grow freely, maintain road access and roadbed integrity, or eliminate exotic invasive weeds. The properly timed application(s) of site-appropriate herbicide(s) can reduce the competition for light and nutrients from non-desirable or noxious plants, improve forest productivity, increase biodiversity and species richness, and lengthen the interval between fires through reduction in undesirable fuel loading.

Rodenticides shall not be used within the context of this THP.

General Overview of Forestry Use of Herbicides in Reforestation

We use a subclass of pesticides referred to as "herbicides". This is an important distinction as the methods by which herbicides control vegetation are related to plants and their unique growth mechanisms. Unlike insecticides, herbicides are generally not toxic to humans, because they do not try to disrupt energy pathways or essential vertebrate life processes. It is important to note that the herbicides used by SPI and detailed below, are virtually non-toxic to humans. The labels usually require that non-protected contact with the herbicide be avoided until the applied herbicides are dry. Most public, hunter or adjacent land manager access is by driving through our lands and would be unlikely to contact herbicides within the 12 hour drying period after application. SPI employees, and other contractors spend little or no time in areas that are treated during the drying period. Thus even in the most heavily traveled or accessible areas on our property, the likelihood of such contact is so low as to be insignificant. To reduce potential for contact during the drying period, SPI personal and/or applicators survey the areas to be treated to assure that non-applicator humans are not present in or near the treatment area. Given the toxicity levels of the herbicides discussed below, extended contact with these herbicides by humans after the drying period (although very unlikely) is not likely to lead to any significant adverse impacts. Past herbicide use is often raised as a concern under CEQA analyses. CEQA analysis requires disclosure of past projects or effects that are ongoing and may add to significant adverse effects. On most of SPI lands, past owners did not practice evenage regeneration methods and therefore did not use herbicides for regeneration efforts. Even if past evenage management has occurred in a particular watershed, SPI's sustained yield planning constrains adjacent evenage management to approximately 10 year intervals, and the FPRs limit such adjacent evenage management to generally 5 years or longer. Once again, on any individual acre potential herbicide use will be limited to an average of once or twice in fifty to eighty years. Adjacency constraints on harvesting indicate how soon herbicides might be used on a neighboring area.

As a general matter SPI usually enters a watershed on a decadal basis. Typically all plans that will be undertaken in a watershed are disclosed at about the same time. After completing the named plans in a watershed, usually there is no planned additional harvesting for that decade.

Additionally, once activated, the persistence of the herbicides in the soil is very short lived. In most cases, such persistence lasts only a few weeks and a few last up to one season. Herbicides used by SPI break down in sunlight or by soil microbe activity. So in 5 years, and especially after 10 years, there is a very low likelihood that any past herbicide use contributes to on going effects. SPI, similar to past owners of these properties, did not maintain records of herbicides applied to our land until recently, therefore there is no feasible way to collect information about past herbicide use.

Pesticides tested for both EPA label and DPR registration undergo a number of tests and evaluations of risk. These analyses and mitigations were designed to provide protection for human health and the environment and were developed under assumed use in urban and semi-urban/agricultural environments. SPI's use is even more remote with less likelihood of nearby resident neighbors, yet we still employ all label restrictions and provide even larger buffers for nearby water than those prescribed on the label. These buffer widths are detailed and discussed in this THP under our response to question #26. By using herbicides in such comparably remote areas and with greater than recommended restrictions, there is even less likelihood of significant adverse effects than under the EPA/DPR determined safe use restrictions.

Herbicide applications to small areas within a forested watershed also do not create a substantial or potentially substantial adverse change in the environment. Impacts to target plants are short lived. Site occupancy/re-occupancy by invading vegetation or vegetation on site is rapid. Within a forested watershed application of herbicides for reforestation on any given acre will generally take place on average only once or twice during the lifetime of a stand. To clarify why the reader finds the 50 to 80 year time frame in this discussion; under SPI's sustained yield planning (based upon SPI's average 80 year rotation age) herbicide application would occur once or twice for any acre of forestland on average every 80 years. If SPI were no longer the owner of these lands, on Site I timberland, the Forest Practice Rule shortest such interval would be 50

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years. On lower Site II or III, such interval would be 60 years and for Site 4 or lower 80 years for the shortest legal interval. Potentially significant, adverse, cumulative impacts are not expected from herbicide application with such long intervals between applications on any acre.

There are fundamental differences in how herbicides are used in reforestation applications that provide added measures of protection and lower risk assessment for its use. In addition to the long interval between re-use, when forest uses interface with water, such water is normally free flowing and not contained in ponds and therefore, while highly improbable, any herbicide that does reach such waters would dilute rather than concentrate. This possibility is only raised, not because water contact is even likely, but to place into context that even in a worst-case scenario, the potential for significant adverse effects is extremely remote.

Commonly, public comments are submitted that claim the professional foresters should be able to predict future forest conditions related to competing vegetation. While general growth and yield results as to the tree component have been studied and models do exist which can predict this portion of future growth, no models exist which provide any reliable prediction as to the type, species and conditions of future competing vegetation. The reason such prediction is so unreliable is because the environmental variables that allow the germination and growth or vigorous re-growth of existing vegetation depend on far too many conditions that are individually unpredictable and cumulatively impossible to predict with any certainty. These variables include the seasonal timing of when any particular acre is logged; the effectiveness of a myriad of post-harvest site preparations; the previous years weather's impact on the previous years germination and production of seed of wind borne species or resident species; the aspect and slope conditions of the harvest area; and the combination of all of the above conditions. For example, if broadcast prescribed fire is used for site preparation, it can range from a hot clean burn to slow smoldering low heat fire. This can have dramatic effects on the types of competing vegetation that result. Thus, the fundamental aspect of future herbicide use, the specific target species, is the essence of speculation and currently beyond the ability of available prediction tools.

Notwithstanding the above contentions and conclusions, there exists a reasonable possibility that some form of herbicide may be used to control vegetation post-harvest on some portion of the proposed THP. Since CEQA states that the public perception of a problem could be a significant adverse impact in and of itself, and out of a desire to achieve maximum public disclosure of all that is known on the subject upon plan submission, we undertake an analysis of potential impacts and a discussion of alternatives as best we can at the current time, subject to the limitations discussed above.

CEQA Analysis and Discussion

Use of herbicides could occur anywhere from preharvest to ten years post harvest. The same can be said for the other methods of vegetation control in the Integrated Vegetation Management (IVM) tool kit.

We can state the following:

1. In past reforestation efforts, we have commonly used ground applications and aerial applications (depending on the district, i.e. some never, some almost always, and some in between) of imazapyr, triclopyr, hexazinone, glyphosate, and atrazine -- each at varying rates of application, and in full compliance with label requirements.
2. Decisions about site prep or conifer release herbicide application are made after harvest based on the future (then current) conditions on the ground. These conditions include the amount of competing vegetation present and its future growth potential, level of moisture retention capability in the specific soil, survival success rates of the planted conifer seedlings, amount of insect or rodent damage, and other factors that are similarly not known at this time.
3. If and when herbicides are used, they will be applied according to the laws and regulations covering pesticide use at that time in California. We will only use herbicides registered by the California Department of Pesticide Regulation (CDPR). We will obtain any permits required for pesticide use from the Agricultural Commissioner for each County in which we operate.

As stated above, DPR is responsible for evaluating and registering all pesticides used within the State. This means that no pesticide may be used within the State without first being registered through DPR. DPR determines in their evaluation process what testing is necessary so the pesticide can become registered. Pesticides registered with the State must be used consistent with label instructions. The pesticide registration program of the California DPR is certified as a "functional equivalent" of an Environmental Impact Report under the California Environmental Quality Act (CEQA). The registrant must perform over 120 tests on each product to assure its safety to people, wildlife, and the environment. Forest pesticides are required to have an additional battery of tests called the Forest Ecosystem Study. Pesticides undergo an environmental and toxicological risk assessment during the registration process. Representatives of several state agencies participate in this review to assist DPR. These agencies include Air Quality, Water Quality, Agriculture, Fish and Game, and the Office of Environmental Health Hazard Assessment. Notices of the "Decision to Register" for each pesticide are posted for at least 30 days for public comment before such pesticide is finally licensed for use in the state.

DPR registration process establishes that the EPA label restriction of how materials may be applied and used is adequate for human and environmental protection. If DPR finds the label lacking or finds some other issue of concern, it can change the status of the pesticide to a restricted class and add additional mitigations through that status.

After a pesticide is registered for use in this state, DPR has an ongoing obligation to review new information received about the pesticide that might show new problems beyond those identified in the registration process. Where new problems come to light, DPR is required to reopen and reexamine the registration.

Each pesticide has a label that describes possible environmental hazards associated with the use of the product. The label, which is a legal document, prohibits any use dangerous to the environment, and describes mitigation measures to minimize any adverse environmental effects. All pesticide handlers must, by law, undergo annual training in the safe and effective use of all pesticides they use. They are required to read those pesticide labels before use. This training also includes the use of personal protective equipment (PPE), and procedures for emergency medical treatment and spill cleanup. A Pest Control Advisor (PCA) must certify, in a written recommendation, that alternatives and mitigation measures that would substantially lessen any significant adverse impact on the environment have been considered and if feasible, adopted. Licensed Pest Control Operators must also read and follow any additional restrictions and/or mitigation measures listed on the PCA recommendation. Both PCAs and PCOs must maintain copies of all recommendations for one year following the date of the recommendation. Contractors must report the agricultural use (which includes timber production) of any restricted use pesticide to the agricultural commissioner within seven days of completion of the application. The PCO must report any pesticide use by the 10th of the month following an application to the county program coordinator.

The process of registering, applying, and reporting pesticide use in California is part of the most intensive pesticide regulatory system in the world. SPI fully intends to comply with this regulatory system and all subsequent changes and modifications to that system. Sierra Pacific Industries like any individual or corporation, must follow the law regarding herbicide use. A State Licensed Pest Control Advisor must write a written recommendation prior to herbicide use. This recommendation must be consistent with label provisions. Compliance with the certified program for herbicide and pesticide use should provide reasonable reassurance that there will be no significant adverse impact.

As stated before, we can say that it is likely, as a preharvest treatment, and/or part of the site preparation and/or later as competing vegetation control, that herbicide may be applied to some portion of regeneration acres of this THP. Such use will be managed and further mitigated as follows:

- 1) A written recommendation will be made by a state licensed pest control advisor (PCA).

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- 2) Application will be made by a state licensed pest control operator (PCO) contracted and supervised by Sierra Pacific Industries.
- 3) Herbicide(s) used will provide both contact and residual control of grasses and woody plants.
- 4) If we use herbicides in reforestation activities on this THP, herbicides will normally only be applied to some of the evenaged managed units, which will be planted or have been planted.
- 5) In our past work, site preparation application is normally made in the fall following the completion of logging and mechanical site preparation but may be utilized in the following spring and summer. Herbicide application for competing vegetation use is normally applied in the fall or spring. Hand applied, directed sprays can be applied during the spring, summer and fall. Weather patterns including temperature, wind speed, and rainfall will affect spraying decisions and PCA prescriptions. Discussing the various possibilities is futile because they totally depend on the conditions at the time and because the number of variables makes abstract analysis apart from site-specific facts uninformative. However there are certain minimum requirements set forth on the label which would include limits during the time of application on wind speed, rainfall, weather conditions, etc.
- 6) If we use herbicides, those herbicides may be applied aerially (helicopter), from ground-based equipment or by ground crews using backpack sprayers. The factors affecting choice of application method include cost, worker safety, the kind of herbicides to be applied and regulatory constraints thereof, and the target species. Once again, discussing the various possibilities is not productive because it is speculative with respect to the site-specific conditions at the time and because the number of variables makes abstract analysis apart from site-specific facts uninformative.
- 7) If present or found by subsequent survey, special interest plants (including listed plant species) are protected from herbicides if necessary by site specific application of plant protection measures detailed under the biological resources sections of this THP.
- 8) All required buffers near watercourses and wetlands will be carefully avoided.

(As a point of clarification, SPI would like to define "required buffers" as used in item 8 to include all Forest Practice Rule (14 CCR 916.5, 936.5, 956.5) required buffers even though commonly the herbicide labels allow narrower stream protection. In addition, "carefully avoided" means no herbicide will be applied in these buffers. The FPR buffers are always significantly greater than the label requirements for stream protection. The State sometimes requires buffers in areas that are outside of FPR required buffers, for example the State designated Pesticide Management Zones (PMZs) which relate to porous soils. So when we say required buffers we mean those required by either FPR or pesticide label, and we utilize whichever gives the most protection.)

In summary, based on the extensive testing by herbicide manufacturers for the US EPA, review and analysis of those tests by the EPA and DPR, the ongoing review of new information by DPR, and the application by a state licensed Pest Control Operator following the recommendations of a state licensed Pest Control Advisor, no significant cumulative impacts are anticipated to occur.

The County's agricultural commissioner oversees portions of the DPR's functional equivalent program and is designated as a state agency for the purposes of certification (3 CCR 6100(a)(7)). Any pesticide operator must be licensed with the state and must report any pesticide

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use by the 10th of the month following an application to the county program coordinator. Detailed records are kept on any pesticide application. This information is tracked by DPR and is available to the public.

To the extent that SPI does have the responsibility to evaluate potential chemical use as it pertains to cumulative watershed or biological effects, we have concluded that adherence to State and Federal laws pertaining to certifications and operations should prevent significant effects. In making this determination, SPI has considered the potential environmental effects of five herbicide groups, which are the ones that we have used in past reforestation projects; even though, it is still currently unknown which herbicides would ultimately be used in this THP (if any), or the amount or frequency of use of these chemicals, or whether the registration for these products would change substantially due to actions of regulatory agencies. The labels of the five herbicide groups include mitigations as to concentrations allowed and minimum protections to watercourses that assure significant adverse impacts would be avoided. With respect to the five chemicals imazapyr, atrazine, hexazinone, triclopyr, and glyphosate, scientific information on these products was obtained from the U. S. Department of Agriculture Pesticide Fact Sheets and from the 1992 Crop Protection Chemicals Reference.

Imazapyr is registered for forestry and right-of-way uses. Imazapyr is a non-selective, systemic plant growth inhibitor. This chemical is biologically active in plants at low concentrations. The plant rapidly takes up Imazapyr, where it inhibits an enzyme essential to plant growth. This enzyme is not present in other organisms. In forestry dissipation studies, reported values for the half-life of imazapyr range from 14 to 44 days in forest litter, 19 to 34 days in forest soils, and 12 to 40 days on plants. Imazapyr is water soluble and does not readily bind to organic material in soils. Therefore, it is classified as highly mobile and can travel through soil with water and enter groundwater. It can also move with runoff and enter surface water. Its low application rates minimize potential impacts on surface or groundwater. Based on lab and field studies Imazapyr is practically non-toxic to fish, birds and bees on a short term (acute) basis. Imazapyr does not appear to bioaccumulate in animals and is classified as practically non-toxic to mammals on a short-term basis. We have reviewed DPR and EPA's research and testing for impacts pertaining to imazapyr. Given the scientific and toxicological information in conjunction with the DPR and EPA testing and label restrictions, SPI finds that Imazapyr use would not pose a significant human health hazard nor produce any significant adverse environmental impacts when used in accordance to label or other regulatory restrictions and when used in the typical manner during reforestation.

Atrazine is registered for forestry, rangeland, and right-of-way uses. It is used to control grasses and broadleaf weeds and is adsorbed by roots and leaves of plants. It moves up through the plant, builds up in the margin of the leaves and acts by inhibiting photosynthesis in plants. Plants killed by atrazine do not metabolize the chemical; while plants that are tolerant are able to metabolize atrazine to hydroxyatrazine and amino acid conjugates. Atrazine is applied before or after plant growth begins, but after growth begins, it should be applied when weeds are young, active and only about 1.5 inches tall.

Atrazine is active in the soil for about 5 to 7 months. Atrazine is adsorbed by soils, but how much depends on the type of soil. Under certain soil conditions, it may not stay adsorbed. Atrazine persists longer under cold and dry soil conditions. Eventually, soil microorganisms break it down, and sunlight may also break it down to a small degree. Detectable amounts of atrazine are usually not found below the upper foot of soil. The main breakdown product of atrazine in the soil is hydroxyatrazine, which does not move easily in the soil. Deisopropylated atrazine and deethylated atrazine have also been found in the soil. Atrazine does dissolve in water and can move easily in certain very porous and sandy soils. Occurrences of atrazine in ground water are related to sandy soils in areas that have been identified and mapped by the CalEPA as Pesticide Management Zones (PMZ) and there are restrictions for use of the product in those identified zones. No such PMZs are located within this THP.

There are no known soil conditions in this THP, which would result in designation as a pesticide management zone. In fact these soil types are rare to nonexistent in the forest environments owned by SPI. Other concerns related to atrazine use arise from irrigation runoff or herbicide loading situations in areas where the product has access to wellheads. In those instances, resulting groundwater readings showing contamination are primarily in areas where atrazine has

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been used repeatedly on annual cropland. The conditions giving rise to irrigation runoff, and loading near wellheads generally do not exist in our forestlands and do not exist in this THP. Forestland use of atrazine does not follow this use pattern because it is normally used only once in the 80 year average rotation age of trees on SPI lands and is used prior to the time that the conifers gain control of the site and shade out grass and weed species. Because of the potential for groundwater transportation, the label restriction (EPA label registration number: 100-497) states that users are not advised to apply atrazine to sand and loamy sand soils where the ground water is close to the surface and where these soils are very well-drained.

As previously stated, there are no such PMZs in this THP. The product is not to be applied directly to water or wetlands, and it is not to be applied where runoff is likely to occur. Atrazine can be used for control of annual broadleaf and grass weeds prior to transplanting conifer seedlings or after transplanting or in established conifers, but should be applied when trees are dormant. Atrazine is moderate to slightly toxic to fish and can build up in fish to a small degree. It is slightly toxic to amphibian eggs and tadpoles. It is slightly toxic to almost non-toxic to birds. The toxicity to mammals is low. It is practically non-toxic to bees. For human health effects, no adverse effects have been reported in man and no long-term effects have been reported in man. Coming into contact with plants that have just been treated with atrazine and eating treated berries could cause some ill effects. We have reviewed DPR and EPA's research and testing for impacts pertaining to atrazine. Given the scientific and toxicological information in conjunction with the DPR and EPA testing and label restrictions, SPI finds that atrazine use would not pose a significant human health hazard nor produce any significant adverse environmental impacts when used in accordance to label and other regulatory restrictions and when used in the typical manner during reforestation.

Hexazinone is used for control of broadleaf weeds, grasses and woody plants to further the growing of conifers. It inhibits photosynthesis, is readily adsorbed through leaves and roots and moves in an upward direction through the plant. It is not to be applied to saturated soils. Hexazinone may remain active in the soil at low concentrations for up to three years after application. It is only minimally adsorbed to soil but is highly adsorbed to the leaf litter layer. It will release carbon dioxide upon breakdown. No information is available on the possible effects on the environment or other metabolites of hexazinone found in the soil. It could contaminate groundwater; however, it is not likely to leach beyond the root zone according to at least one study document prepared for the USFS by Information Ventures Incorporated (1995). It degrades rapidly in natural waters. It is not toxic to fungi, bacteria or other soil microorganisms at registered use rates. It is, however, highly toxic to non-target plants. It is practically nontoxic to fish, freshwater invertebrates and mollusks and is slightly toxic to crustaceans. No studies have been reported for amphibians or aquatic organisms. It is practically nontoxic to birds and insects. Toxicity to mammals is also minimal. There are no reported cases of long-term health effects to humans, and it has not been reported to have caused any deaths or hospitalized cases, although there is one report of vomiting after 24 hours after inhalation of hexazinone dust. Hexazinone is not to be applied directly to water or wetlands or where runoff is likely to occur (EPA 352-581). Grazing of animals on areas treated by hexazinone should not be done within 30 days after treatment to avoid residues of hexazinone in meat or milk. In forestland situations, it is typically used for release of planted conifers and because of its lasting effects on weed species; it is not usually needed more than once in the 80 year average rotation life of the planted conifers on SPI lands. We have reviewed DPR and EPA's research and testing for impacts pertaining to hexazinone. Given the scientific and toxicological information in conjunction with the DPR and EPA testing and label restrictions, SPI finds that hexazinone use would not pose a significant human health hazard nor produce any significant adverse environmental impacts when used in accordance to label or other regulatory restrictions and when used in the typical manner during reforestation.

Triclopyr controls woody plants and broadleaf weeds in forestland, rangeland and permanent grass pastures. It acts by disturbing plant growth and it is absorbed by green bark, leaves and roots and moves throughout the plant. It accumulates in the meristem region of the plant. Triclopyr is active in the soil and is adsorbed by clay particles and organic matter in the soil. Microorganisms degrade triclopyr rapidly with the average half-life being 46 days. The potential for leaching depends on the soil type, acidity and rainfall. It should not present a leaching problem

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under normal conditions since it binds to clay and organic matter in the soil. It may leach from light soils if rainfall is very heavy. Sunlight breaks down triclopyr rapidly in water in less than 24 hours. It is slightly toxic to practically non-toxic to soil microorganisms and is low in toxicity to fish. Triclopyr does not accumulate in fish and is slightly toxic to practically non-toxic to invertebrates. Triclopyr is slightly toxic to mammals, but most triclopyr is excreted, unchanged, in the urine. There are no reported long-term or short-term human health effects. It is not to be applied directly to water according to EPA label restrictions (EPA 352-378). Triclopyr would not likely be used more than once in the 80 year average rotation age of a conifer plantation on SPI lands since growing conifers would be able to get control of the site rapidly to shade out weed and grass species. Pines especially are damaged by triclopyr, so once pines are planted, overspray of the product would not be a typical application. A ground spray of the product directed away from pine seedlings might be possible following tree planting. We have reviewed DPR and EPA's research and testing for impacts pertaining to triclopyr. Given the scientific and toxicological information in conjunction with the DPR and EPA testing and label restrictions, SPI finds that triclopyr use would not pose a significant human health hazard nor produce any significant adverse environmental impacts when used in accordance to label or other regulatory restrictions and when used in the typical manner during reforestation.

Glyphosate, the active ingredient in the over the counter herbicide Roundup, is used to control grasses, herbaceous plants including deep rooted perennial weeds, brush, and some broadleaf trees and shrubs. It is applied to foliage, is adsorbed by leaves and rapidly moves through the plant. It acts by preventing the plant from producing an essential amino acid. Aminomethylphosphonic acid is the main break-down product. It is generally not active in soil and is not usually absorbed from the soil by plants. It remains unchanged in the soil for varying lengths of time, depending on soil texture and organic matter content. The half-life of glyphosate can range from 3 to 130 days. The surfactant in roundup has a soil half-life of less than one week. The main breakdown product of the surfactant is carbon dioxide. Glyphosate dissolves easily in water. The potential for leaching into groundwater is low as it is strongly adsorbed by soil particles. It does not evaporate easily. Glyphosate has no known effect on soil microorganisms. Contact with non-target plants may injure or kill plants, and therefore, use over the top of established conifers is mostly done when the conifers are dormant. It is practically non-toxic to birds and mammals and bees. It is no more than slightly toxic to fish and practically non-toxic to aquatic invertebrate animals. It does not build up in fish. There are no reported cases of long-term health effects in humans due to glyphosate. According to label restrictions, glyphosate is not to be applied directly to water or wetlands. Typically in forestland uses, glyphosate is applied to individual weed species that are in competition with growing seedlings, but may also be used in a broadcast spray over the top of planted seedlings when they are dormant to control competing vegetation. Once tree seedlings have control of the site, it is no longer necessary to use this product in the approximately 80 year average rotation period of SPI plantations. Site control is usually reached within the first 4 to 5 years after planting depending on the spacing and survival rate of tree seedlings. We have reviewed DPR and EPA's research and testing for impacts pertaining to glyphosate. Given the scientific and toxicological information in conjunction with the DPR and EPA testing and label restrictions, SPI finds that glyphosate use would not pose a significant human health hazard nor produce any significant adverse environmental impacts when used in accordance to label or other regulatory restrictions and when used in the typical manner during reforestation.

Biological effects of herbicide use can vary depending on the number of applications and the timing of the applications, but generally, field observations indicate that none of these above mentioned herbicides are 100% effective in eliminating brush, forbs or weeds. All the products have labeled target vegetation species against which the material is effective, but even a total elimination of these labeled species is not typically gained, although there may be stunting of the growth of some of these species for a time. Except for atrazine and hexazinone, these products do not have much effect on seeds of brush, forbs or other species so there can be germination of these species within a short period of time. Atrazine and hexazinone have an effect on seeds for a short while (usually only one to three growing seasons), but will break down over time and the remaining seed bank in storage in the soil or seeds blowing in from other areas will be available to

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regenerate the various species. Since the even-aged regeneration units are spaced out over time and over the landscape in accordance with BOF rules, other units that have brush, forbs or weed growth will be available nearby; hence, it is highly unlikely a variety of species useful for wildlife habitat and forage will be extirpated on any landscape basis. SPI has been compiling results from an in-house plantation species diversity study. Preliminary indications are that there is no loss in biodiversity as compared between plantations and surrounding forest conditions. Information concerning this study design can be obtained from Dr. Cajun James, SPIs' Research and Monitoring Manager.

As stated previously, the purpose of herbicide use on these forestlands is not to eliminate brush, forb and weed species, but rather it is necessary to allow the tree seedlings an opportunity to outgrow the competition up to a superior height where the trees are then able to control the site by the natural process of dominating available sunlight. In fact, in a recent study of herbicide use in both regenerated plantations and plantations resulting from wildfire actually found the total biodiversity of all plants grasses and forbs was increased on sites that were treated with herbicides (DiTomaso, 1997).

From what is known about the toxicity of the chemicals as discussed above and the proper application methods; the label restrictions as specified above in regards to use around water and wetlands; the fact that these products are not repeatedly used in forest conditions on the same acreage as they might be used in other agricultural or urban settings; the relatively low toxicity as shown in the laboratory testing conducting thus far; and all the other factors discussed herein, it does not appear there is a substantial risk of a significant adverse environmental or other impacts to amphibians.

Public comment in the past has raised the issue of additives to herbicides used by SPI. We have attempted to identify each additive (commonly called adjuvants) that is something other than the tested herbicide ingredient(s) which are added to a spray solution to enhance or modify its performance. A subset of adjuvants are surfactants, which are added by the applicator and mixed with the herbicide at the time of application. Surfactants are specialized additives, formulated to improve the emulsifying, spreading, sticking and absorbing properties of liquids. There are five surfactant classes: nonionic surfactants, crop oil concentrates, nitrogen-surfactant blends, esterified seed oils and organo-silicone surfactants. The use of a surfactant tends to reduce the amount of herbicide needed per square meter of application area, because they allow the herbicide to spread more evenly and with a thinner coat and also cause the active ingredient to stick to leaf surfaces. We also add dye to mixes when hand applying herbicides to allow applicators to observe areas of application and avoid repeat spraying. Those additives commonly used by SPI in reforestation efforts include: Hasten, MCO/MSO (both non-ionic esterified vegetable oils), Sylgard 309 (silicone surfactant), Syl-Tac, Dyne-Amic (both vegetable oil and silicone blends), Mor-Act (crop oil concentrate), crop oil concentrate (crop oil and petroleum distillates), R-11 (general wetting agent), and Colorfast Purple (dye). Surfactants and additives are either inert, detergents, vegetable oils, crop oils or petroleum distillates. The actual quantity of additives that are dispersed into the environment is very low in reforestation herbicide application. The herbicide is not transported off the site (see monitoring section below). These additives break down quickly in the forest environment and repeat applications are minimal. The PCA is required to include any adjuvants used in each prescription and the PCO is required to report to the county agriculture commissioner herbicide application including adjuvants. Since the potential use of herbicides is speculative and removed from the THP in time, both the herbicides used as well as the adjuvants may be different in the future from those commonly used today.

Alternatives Considered

SPI considers alternatives to the use of herbicides, before any such use. In our evaluation of potential use of herbicides, at the time of potential use, a licensed agricultural pest control adviser, when determining if and when to use a herbicide, shall consider and if feasible adopt any reasonable, effective and practical mitigation measure or use any feasible alternative which would substantially lessen any significant adverse impact on the environment. These typical mitigations include specific restrictions on weather conditions, and wind speed that prohibit

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using herbicides in conditions which might increase risks. They also include specific protections as to mixing, loading herbicides and washing equipment to prevent any accidental releases near watercourses. Each licensed agricultural pest control operator shall have available a copy of a written recommendation covering each agricultural use application of an herbicide, and shall operate in accordance with the product label or any pesticide permit issued by the county agriculture commissioner.

SPI to the extent feasible utilizes prescribed fire and mechanical methods to prepare a site for planting. Prescribed fire removes the physical barriers created by dead slash and living vegetation but has no effect on controlling re-sprouting of burned plants. The extent to which these mechanical methods are effective will be one of the determining factors in whether, how, and when herbicides are used. Mechanical methods include ripping or subsoiling, brush raking and piling to prepare a planting site.

Manually clearing brush does not have the same effect as herbicide spraying. Some herbicides retard growth but do not kill the plant. Pulling the plant out by the roots kills the plant altogether. Cutting most plants retards them but not sufficiently to achieve conifer release. Therefore the effects of manual brush control are less predictable and not as consistent as herbicide spray.

Manual clearing is not feasible because there is no established work force willing to do the work. The rate of injuries is very high. The work is very tedious and difficult. One company attempted to use immigrant Russian laborers quite in need of manual work. Notwithstanding the hearty nature of the workers and their exceptional motivation they were unable to complete even the trial. Even if they had been able to continue the cost would have been prohibitive. There is no known stable work force willing to undertake this very arduous and injury-prone work. Therefore once mechanical methods have been employed or become impractical because young trees are already in the ground, there is no feasible alternative to spraying that might achieve a similar result.

We have also considered the no action alternative. If no spraying was done where spraying is indicated there will always be a significant impact on tree growth. In many cases, planted tree survival may even be at risk, without herbicide use. Studies indicate that planted conifer growth, can be retarded 30 to 70% (USDA, 1988), depending on site quality, weather conditions, competing vegetation composition and seed bank in the soil. SPI makes note that in our approved Option A demonstration of maximum sustained production, our analysis determined that 32% of our existing productive capacity is expended to comply with the existing regulations. Therefore the additional loss of 30 to 70% of potential growth on the remaining manageable acres would raise the question of the continued economic viability of managing forests in California. It is not possible at this time to estimate the actual difference between no action and herbicide application on this site because we don't know the conditions that will ultimately develop. To attempt an estimate of growth differences on this site between the no action alternative and the herbicide use alternative would be completely speculative in the absence of site-specific information only available at the time of the proposed spraying.

It is also important to note that harvesting under the California Forest Practice Act (FPA), requires successful restocking of cleared sites, to continue to meet the combined objectives of the landowner and the California legislature. These objectives are located in the intent section of the FPA and Section 4551 as shown below (*Emphasis added*):

4513. Intent of Legislature. It is the intent of the Legislature to create and maintain an effective and comprehensive system of regulation and use of all timberlands so as to assure that:

- (a) *Where feasible, the productivity of timberlands is restored, enhanced, and maintained.*
- (b) *The goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment.*

4551. Adoption of district forest practice rules and regulations. The board shall adopt district forest practice rules and regulations for each district in accordance with the

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policies set forth in Article 1 (commencing with Section 4511) of this chapter and pursuant to Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code to assure the continuous growing and harvesting of commercial forest tree species and to protect the soil, air, fish and wildlife, and water resources, including, but not limited to, streams lakes and estuaries.

SPI Monitoring

In SPI's continuing efforts to make sound science-based decisions about management of its lands, including our ongoing research into potential adverse impacts from our management and our desire to test the effectiveness of our own contractors, we have instituted a monitoring and effectiveness program related to our use of herbicides. This program started in 2000 and through January 22, 2008, has resulted in 3,730 samples being taken for testing, from across our lands. Sample sites were selected in a manner reasonably calculated to determine if typical spraying activity would result in water contamination. The sampling site selection was supervised by Dr. Cajun James with a view toward obtaining statistically valid results. These samples were tested for the five herbicides described above as well as seven other potential water quality chemical contaminants. Surface water samples were collected following US EPA grab sample procedures. All samples are sent to a California Environmental Laboratory Accreditation Program (ELAP)-(a certified laboratory) for analysis. Through January 22, 2008, SPI has spent \$430,309 to test these 3,730 samples at ELAP tested and certified labs. The result is that there have been no reportable detections of any of the tested chemicals. SPI is continuing to sample our operations, but truly believes these results strongly demonstrate that the mitigations on the product labels, combined with the PCA recommendations and the PCO applications, all done under SPI's supervision, as well as all the other constraints on forest use of herbicides discussed herein, have been very effective in preventing water quality contamination by herbicides.

Conclusion

In summary, on any given acre of SPI's forestland, application of herbicides may occur once or twice every 50-80 years. The facts of its occurrence are much too speculative so we have undertaken an analysis of potential impacts and alternatives, given the current state of the scientific knowledge of the products registered for use on conifer forestlands, and discussed the speculative nature of the amount and timing of use of these products on forestlands. Considering the typical pattern of use of these products, the history of past use, and the label restrictions and regulations on the use of these chemicals, SPI concludes that there will be no significant potential adverse environmental impacts from the application of registered materials, if they are used in accordance with existing label precautions, the existing statutory mandates and the Forest Practice Rules.

SPI further concludes that these products do not eliminate grasses, herbs, weeds, and brush species, but do provide for a temporary reduction in competition for conifer seedlings, so that such seedlings may be able to survive and grow more rapidly. Herbicide use is sometimes necessary as part of SPI's required demonstration of achievement of maximum sustained production, which is the Board of Forestry's effort to interpret into rule language the legislative goal of maximum sustained production of high-quality forest products while giving consideration to the other forest values. A policy of no herbicide use is not a feasible alternative. SPI also concludes that there will be no potential adverse environmental impacts to water quality considering the watercourse and lake protection buffers and label restrictions. After reasonable study, there is no evidence known to this applicant to support the conclusion that application of herbicides in a lawful manner would constitute a significant adverse impact on the environment.

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SECTION V

ATTACHMENTS – SQUIGGLY THP

- 1000 Foot Downstream Landowner Information Request Letter
 - Domestic Public Use Notice
 - EHR Worksheets
 - Culvert Sizing Methodology
 - 1603 Notification Of Streamside Alteration
 - NDDDB Lower Blue Creek Watershed
 - Botanical Scoping Report
-

SPIs ' response to claims of deficiency of our Option A for the Southern Forest District

In a comment letter from attorney Tom Lippe representing Ebbetts Pass Forest Watch dated May 27th 2008, the following summary and claim is made:

Summary

THP-005 is based on SPI ' s nine year-old Option A Demonstration of Maximum Sustainable Production ("Option A Demonstration"), dated January 1, 1999, which has become obsolete in light of important new scientific evidence of the impacts of climate change on forest resources. Because SPI has not updated its Option A Demonstration to incorporate more recent projections of negative impacts of climate change on tree growth rates and wood volumes, SPI overestimates its Long-Term Sustained Yield ("LTSY"). As long as SPI continues to base its annual timber harvest rates on its outdated Option A Demonstration (copy attached hereto as Exhibit I), it cannot demonstrate that its average annual yields will not exceed the rate required to "balanc[e] growth and harvest over time" as required by Forest Practice Rule 95 3.1 1, subdivision (a)(2). The proposed harvest in THP- 005 is based on the 1999 Option A Demonstration and therefore fails to satisfy the requirements of Rule 953.1 1.

This commenter relies heavily on a March 2006 paper submitted to California Energy Commission, but this report has been supplanted by the authors in a peer reviewed journal article called "Climate change impacts on forest growth and tree mortality: a data-driven modeling study in the mixed conifer forest of the Sierra Nevada, California" (Battles et al. 2008). The updated study based upon more data already reduced the claimed decrease in future growth on ponderosa pine plantations from 31% (used by the commenter) to 25%.

It should be made clear that the worst case future climate change projections which give us this 25% predicted potential reduction in growth are based upon assumptions of continued increases in CO₂ emissions with little or no impact from efforts to convert from a carbon intensive lifestyle in what is now a world wide recognized problem. Thus the worst case scenario is also very unlikely given the efforts of California alone to regulate and control CO₂ emissions.

Despite the seemingly absolute nature of the commenter's views as they relate to alleged scientific unanimity on the interaction of climate change and forest growth, we will explain why there is considerable uncertainty, why the claims are speculative, and more importantly why they would not present a concern regarding SPI's modeling effort even if they were true in the manner that the commentator argues. Additionally the commenter ignored: some clear warnings in the study about its inferential value; the studies own declaration that it did not consider a well known effect of potential CO₂ fertilizing on future vegetation growth; the current state of the art of future growth modeling as it may be potentially impacted by the indirect effects of climate change; the

extremely conservative estimates and margin for error already built into the growth model for unforeseen impacts on the rate of growth; and finally the automatic update function in the modeling program that takes real time growth data every decade and adjusts the model for new empirical evidence. The following quotes from the 2008 revised study give some indication as to some of these concerns:

"While we acknowledge the limited inferential power of a case study, this approach complements the state-wide projections of changes in forest resources (Lenihan et al. 2006)" (from page S194).

"Clearly a better understanding of the long-term effects of climate change and atmospheric CO₂ concentrations on tree water relations, forest productivity, and carbon allocation is crucial to improving projections of future forest conditions" (from page S208).

"We recognize that a significant challenge in predicting the impact of climate change on managed forests in California will be anticipating the biological interactions that accompany that change. Some of the most important interactions will include forest insects and diseases. These pests have complex interactions with hosts, vectors, and natural enemies. Moreover the ecology of all of these organisms is likely to be affected by a changing climate. Currently we are not capable of quantifying these crucial interactions" (from page S209-S210).

"On the other hand, we explicitly excluded CO₂ fertilization effects – a decision that potentially leads to overestimates of productivity declines. We also used simulated stands to evaluate growth in pine plantations. A[t] better alternative would be to ground the climate growth projections for pine plantations in inventory data as we did for the reserve and single-tree analyses" (from page S211).

"Modeling specific impacts of future climate on California's forests is a precarious undertaking. In particular, we are concerned about the consequences of unanticipated events. We have only modeled the direct effects of climate change and not considered potential indirect effects on the disturbance regime (sensu Aber et al. 2001). Fire is an obvious concern. Insect outbreaks or pathogen irruptions also have the potential to entirely swamp climate-related growth effects on forest yield and tree mortality. The nature, magnitude, and timing of these transforming events are difficult to predict. Unfortunately we will likely gain experience with these climate-driven transformations, and these events will provide crucial learning opportunities if we have built the informational and computational infrastructure needed to study them" (from page S211).

As can be seen from these quotes substantial uncertainty exists in the predictive capacity of this case study to appropriately inform discussion of 100 year modeling efforts of SPIs' specific data driven Option A analysis.

In our effort to point out the differences and author self-recognized limitations of their study, we by no means wish to denigrate the value of this study for the purposes for which it was developed, which was to advise about the potential change in future yields under some potential future climate change scenarios. It was also conducted to test if current models could be used outside of their traditional role and be used to predict potential impacts on yield to potential climate change scenarios without actual real data on either the magnitude of the climate change or the known measured response to trees growing in those conditions. As a scientific query to push the bounds of current models and to help identify limitations and direct future research they clearly accomplished their goals.

As it relates to the issue of CO₂ fertilization this same study indicates that productivity increases from this effect may range from 5 to 19% as compared to a control population. (See page S207 and the reference to Lenihan et al. 2006)

It is ironic that as quoted above these researchers say that "a better alternative would be to ground the climate growth projections for pine plantations in inventory data..." and they have contacted SPI to provide such real world inventory data from our pine plantations (personal communications with both J. Battles and T. Robards authors of this referenced study).

The recent "*Scientific Assessment of the Effects of Global Change on the United States*", A Report of the US Climate Change Science Program's Committee on Environment and Natural Resources of the National Science and Technology Council dated May 2008 (USCCSP 2008) in relation to this issue said the following:

"Where adequate water is available, nitrogen deposition and warmer temperatures have *very likely* increased forest growth and will continue to do so in the near future. However, it is difficult to separate the role of climate from other factors. Rising carbon dioxide levels will *very likely* increase photosynthesis in forests, but this increase will *likely* only enhance wood production in young forests on fertile soils. [V.1.e]" (Page 10, emphasis in the original document)

The Battles et al. study says on page S200 states:

'For this site, there was no trend in winter precipitation in any of the climate scenarios (Figs. 1a and 2a)".

Thus it is reasonable to assume the central Sierras are currently likely to have adequate available water and therefore it is also likely that rising carbon dioxide levels will increase photosynthesis in forests, and that this increase will likely enhance wood production in young forests on fertile soils like those owned and managed by SPI.

Since the actual value of the Battles et al. study to give reliable predictions of future tree growth over time is very low, it is a poor predictor of the need for a new sustained yield projection. In the practical world of yield projection we are considering an entire ownership of differing site and silvicultural prescriptions. We are required by CEQA to use "best information available," and not a mere model in a vacuum. We need to consider the current evidence that future yield will be impacted either positively or negatively and thereafter consider the need for a new projection of LTSY. In response to the question, we therefore discuss the concern in view of the best available data and all of the assumptions used to build the model of future growth on SPI lands including all of the safeguards.

The most important reason that there should be no concern as to the validity of SPIs' future projection of LTSY is that it is based on the most intensive data set ever collected on an individual forest ownership and not an abstract model. SPI has measured over 400,000 individual sample plots on its property, at a sample rate of 1 for every 4 acres. These existing trees were also measured for their recent growth rates and then modeled into the future using the CACTOS growth model. So the harvest volume projections from SPI lands for the next 50 to 80 years are not from modeled future plantations, but from actual trees that exist today growing in the climate and atmospheric conditions that we have the most experience with. The trend in harvest levels and LTSY from our Option A is in an upward trajectory, significantly and continuously increasing from current harvest levels. So if there is any uncertainty as to the eventual upward growth rate of the LTSY on this property it is only a matter of how much higher the growth rate will be at some future date than it is today. We know the growth rate will be accelerating but we may not know exactly how much except that we will be actually measuring it every decade and adjusting estimates accordingly. Thus current harvest levels are not impacted by the potential uncertainty predicted by this study. SPI and CDF have an opportunity (as built into the plan) to monitor actual growth every decade for the next 7 to 8 decades so that the eventual prediction and decadal harvest limits will be regularly adjusted. In fact SPI has committed to establishing a complete set of continuous forest inventory monitoring plots in our plantations across the range of productivity classes on SPIs' lands. These permanent plots will give us many decades lead time to calibrate our growth models and make any necessary adjustments to future LTSY. We are just now beginning to get plantations that were planted at the proper initial spacing, are old enough, tall enough and have been pre-commercially thinned, to begin the establishment of this long term measuring apparatus. Everything is proceeding according to plan and on schedule. It is important to note that the hypothetical reduction in growth rate from climate change is not forecasted to occur until the last three decades of this century.

As to the direct comparison to the pine plantations referenced in the previously mentioned study, the study used CACTOS for its growth modeling engine and started its projections with pine plantations generated by the Forest Stand Generator (a CACTOS utility from Biging et al. 1991). CACTOS has no growth plot data from plantations to guide the model and this is a major shortfall if one intends to make accurate real world predictions. The study cited by the questioner is therefore operating well outside of its modeling dataset. Also the stand generator used permanent growth plots from the CACTOS cooperators to develop its stand generation capability. A much better alternative would have been to build a plantation stand generator utility with real

data from existing plantations. SPI based its future plantation data sets on a ten year University of California, Berkeley cooperative study of direct co-dominant tree spacing dependent growth research by Dr. Ed Stone and Dr. Janet Cavaleiro. This work called GSPACE was used to produce plantation growth calibration data to calibrate CACTOS in our future growth modeling of pine plantations. This provides a much more realistic estimate of the growth of co-dominant trees that will develop in planted forests. CDF, out of an abundance of caution, requested SPI to reduce its research based projections of future plantation growth by 20% while we implemented the continuous forest inventory plots in our plantations. SPI complied with this request for 20% reduction in our long range growth projections. To be clear we took realistic projected growth estimates and intentionally and arbitrarily reduced them by 20% while we awaited the actual data from the plantation inventory plots. In the face of this and other uncertainties, this was a responsible action of both SPI and CDF because these uncertainties only affect how high future harvest levels will be, not the limits on current harvest. As required by the Maximum Sustained Production (MSP) rule (14 CCR 913.11(a)(1), 933.11(a)(1), 953.11(a)(1)) SPI produced a plan that demonstrated

"Producing the yield of timber products specified by the landowner, taking into account biologic and economic factors, while accounting for limits on productivity due to constraints imposed from consideration of other forest values, including but not limited to, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment and aesthetic enjoyment".

As compared to the referenced study which used only two site classes and two initial stocking densities for the modeling exercise, SPIs' LTSY demonstration used over 2000 scenarios on a full range of site classes ranging from a low site 4 to site 1A. This ownership specific, weighted, site and silvicultural prescription based modeling, produces results that are far more reliable than the inferential use of 4 scenarios as was done in the cited study. Also the study only arrived at its 25% loss projection in the last 30 year projection period at the end of this century. SPI's projections are not 20 year old stand generator estimates grown for 30 years, but rather are 80 year projections based on empirical measurements of real co-dominant trees at approximately equal spacing (most approximating the conditions in planted forests) making the SPI projections that much more reliable.

In the management implications of the climate change study the authors suggest:

"Another effective adaptation would be to maintain lower tree densities. By reducing fuel loads and competition, lower density stands provide structures that are more resilient to catastrophic events like fire and epidemics" (from page S209).

As part of the 10 year UC Berkeley cooperative spacing study, significant effort was put into understanding density induced mortality (inter-tree competition). As an outcome of this research SPI altered its plantation management to plant much lower tree densities and to pre-commercially thin at earlier ages to even fewer trees per acre than most past common forest practices. In fact SPI is planting at lower tree densities and then pre-commercially thinning our plantations to the spacing used in this study a full ten years

sooner than the study modeled plantations (incidentally the commercial thinning spacing utilized by SPI emulates mature natural forest spacing). Thus even before this climate change study, SPI had changed its plantation management practices to align with this lower density recommendation to improve overall tree yields (less inter-tree competition leads to greater individual tree and stand growth), to also reduce catastrophic loss to wildfire and insect epidemics (fewer trees leads to healthier, faster growing trees which are able to withstand insect attacks and lead to stand structures of larger trees that are much more resilient to impacts of wildfire). These efforts begun in 1999 have already started to prepare our forests for the potential impacts of global warming that may influence these stands during their expected 80 year rotations. We expect the performance of managed spacing to exceed the original normal yield table projections as a result of improved stand density emulating an optimum mature natural stand.

As part of SPIs' ongoing land management we continue to make investments in increased productivity including tree improvement investments in superior tree selections. The estimates in potential future yield increases from genetic improvement studies range from 15 to 30%. SPI has made no adjustment in its projections of future yields for the expected increase from genetic improvement. The continuous forest inventory plots will also allow real time monitoring of these factors from decade to decade. We will be taking all of the measurements required and thereafter we will calibrate the growth models based on this real time information but with the same sorts of very conservative assumptions that we have made to date which tend to underestimate actual growth rates. We will make any necessary adjustment to future LTSY at that time. However, all indications are that our actual measured growth rate is exceeding our projections.

The Forest Practice Rules (FPR) recommends that projections of future growth and yield are to be guided by the principles of practicality and reasonableness. There is an additional and very significant factor that causes SPI to dramatically understate its future growth. Because of the expense of data collection, expense in updating our calculation more often than is necessary, and because SPI's growth is obviously substantially exceeding its harvest rate, we have not yet made the critical adjustment for an increasing land base. Obviously a calculation made on 10 acres is that much better if in fact there are 11 acres to grow trees and not the 10 acres plugged into the model. The facts as they apply to SPI's Option A modeling are as follows:

SPIs Option A demonstrations were based upon a land ownership in 1999 of 1,504,481 acres. Over the intervening time period that land ownership has grown in California to 1,636,916 acres, representing an increase of 8.8%. SPI received approval to add these lands to our harvest area without any change in harvest limits or adjustments in our LTSY.

SPIs' harvest levels for the time period 1999 through 2007 have averaged only 85% (an under-harvest of 15% per year) of the harvest limits projected from the approved Option A demonstrations. Since the State has no authority nor desire to require a landowner to harvest more than he wishes and there is no rule requirement for 10 year updates of Option A demonstrations

(as there is for Option B "SYPs") for an increasing land base, and since SPI has not exceeded its harvest limits on just the 1,504, 481 acres (not-with-standing the actual available acreage of 1,636,916 acres) the calculation of growth and harvest is made even more conservative. SPI is cutting so far under the maximum allowable cut, that with the other conservative elements (better spacing and improved genetics) it is inconceivable that SPI is actually approaching a situation where harvest is exceeding growth or that its future LTSY would be unattainable. In fact at all times real growth is substantially outstripping harvest. For that reason SPI can safely continue to operate under it's approved Option A.

In summary SPIs' projection of LTSY as demonstrated in its three approved Option A documents are not only responsive to any uncertainty of future climate change they are potentially conservative by as much as a net 67.8% (15% under-harvest, 8.8% increase in land ownership and likely increased yield, 15% to 30% increase from tree improvement, 20% pre-cautionary reduction in plantation yield projections, a 5% to 19% potential CO₂ fertilization, all balanced by a speculative 25% decrease from the effects of global climate change). (15%+8.8%+30%+20%+19%-25%= a positive 67.8%). Therefore, it is our reasoned professional opinion that SPIs current harvest levels and its projected LTSY are indeed responsible and meet the FPR requirements of practicality and reasonableness . . . ***using the best information available*** and clearly meet the CEQA requirement to be responsive to changes in our scientific understanding of the forces at work that might modify our projections into the future. Even though new studies are published, that does not mean they are necessarily better information especially when the authors themselves warn against using them for site specific analysis that was never intended. Simply because our effort is now nine years old takes nothing away from its quality or conservative assumptions or its ability to meet the challenge of CEQA and the legislative mandate that harvest should be at least balanced with growth. SPI is carefully and conservatively modeling the future with the most comprehensive data available in forestry today. SPI remains absolutely convinced based on the facts, and appropriate analysis, that the growth rate on its lands far exceeds the rate of harvest. That SPI will measure a substantial excess of growth over harvest cannot reasonably be doubted.

SPI continues to strive to assure a watchful public, operating through their government representatives and the legal process, that SPI will maintain its commitment to long term non-declining flow of wood fiber with ever improving habitat and atmospheric conditions over the next 90 years. SPI will also continue to meet the public of California's need for maximum production of high quality sustainably produced renewable wood products.

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SPI response to the claimed deficiencies of our Squiggly THP (4-08-05 CAL)

CEQA – Green House Gas Analysis and Response to Comments

The three main claims in the commenter's letter are presented in italics below (all quotes from the commenter will be presented in italics):

1. *SPI's response to our comment letter dated May 27, 2008 fails to justify (i) SPI's reliance on an obsolete ten year old Option A Demonstration of Maximum Sustainable Production ("1999 Option A Demonstration"),*
2. *and (ii) SPI's plan to harvest based on a Long-Term Sustained Yield ("LTSY") calculation which ignores the negative impacts of climate change on future inventories.*
3. *In addition, THP 4-08-05 is unlawful because it fails to identify and mitigate the harvest plan's significant contribution to global warming.*

In response to claim 1, we include a description of the administrative process utilized by CDF to review the 1999 Option A Demonstration ("Option A"). Prior to submission of the Option A SPI met with CDF including UC Berkeley College of Natural Resources researchers Ed Stone, PhD and Janet Cavallero, PhD regarding the use of the G-space UC Cooperative growth model. This model and the data collected to create it came from triangular/equally spaced co-dominant trees at increasing but always equal distances, not unlike the approximately equal spacing in tree plantations on managed forest lands. It was determined at this meeting that SPI could appropriately utilize the G-space model to calibrate the growth rates of the Cactus model for the purpose of estimating future plantation growth. CDF requested and SPI agreed that to assure conservative estimates of future growth Cactus yields would be subject to a 20% discount so that growth projections would be only 80% of the actual predicted growth rate estimated by the G-space model. This effort produced a set of managed plantation yield tables that would be used to predict stand growth in all of the various site classes under the specified growing conditions until further amendment based on actual measured growth. SPI also agreed at that meeting, that SPI would establish permanent growth plots in plantations that are planted at the wider spacing indicated by G-space. Everyone recognized that these permanent growth plots would be established after new plantations were planted and pre-commercially thinned (pct). Plantations from 2001 and newer are just now reaching the age when pct would occur and we will soon begin the random selection of such plantations across the geographic and site class range of SPI's lands and plantations to begin these permanent growth plots. This data will be used to test confidence levels in the growth model and to update future growth estimates based upon real measured results. In addition SPI agreed, that existing plantations (because they were originally planted at higher density) would be modeled in the Option A at 75% of the agreed to "80% of G-space levels". The best available evidence indicates that these older plantations will significantly outgrow this conservative estimate. We decided we would not use these pre 2001 plantations for permanent growth plot estimates because they had been planted at higher density as compared to the plantations from 2001 forward. However we will continue to monitor all growth on all lands with standardized statistically valid techniques regardless of when the plantations were originated. All plantations regardless of date of origin will eventually be measured using standard inventory techniques and incorporated into future inventory estimates, decades before they are harvested.

As part of the CDF review of our Option A, in the fall of 2001 we conducted seven days of field review, spread over a two week period. We started in the Central Sierra Nevada, and traveled north and west throughout our land base. During this two week period we randomly chose existing plantations ranging from 7 years old up to 25 years old to review their existing growth against the SPI managed yield tables

for such sites. We found at each location in review that these plantations were growing at rates equal to or greater than the managed plantation yield tables. This is an important demonstration that our modeling assumptions were conservative, because these same plantations were modeled in our Option A at 75% of the projected growth shown in our managed plantation yield tables. We even stopped at one known plantation that has been monitored for over 50 years on land adjacent to SPI lands. This site known as the Elliot Ranch on National Forest land was planted at eight foot by eight foot spacing following a large wildfire and then thinning activities were begun late at 25 years old. These plantations --even without proper timing of early pre-commercial thinning and without proper spacing throughout their 50 year growth cycle-- were producing trees at diameters and heights within the expectations of our managed yield tables. This review was disclosed as part of the public Option A document at page 18 as follows:

We visited many plantations through the weeklong review with CDF and DFG across the entire ownership; we did not find any that were under performing the growth trajectories portrayed in our Option A documents. We visited existing plantations that did not have all of SPI's current early stand treatments they are still achieving acceptable growth rates. The Elliot Ranch plantation, (now fifty years old on USFS land) was planted at 8 ft x 8 ft spacing and ignored until it was 25 years old. It currently demonstrates achievement of our projected tree sizes at 50 years. It is important to note that any concern about the projected rate of growth estimates of our plantations do not effect any of the proposed harvest volumes for the next fifty years. The volume to be harvested in the next 50 years is already standing on the land and has been measured in the inventory.

While our option A modeling is conservative, that should not be considered a defect in its informational adequacy. In development of a regulatory document, one must always be concerned with the result of potential errors that might lead to outcomes that are contrary to the stated intent of the regulation. In the case of demonstrations of MSP with their inherent estimation of LTSY, it is clearly in the public interest to be conservative because the alternative result would potentially be an overestimate of MSP and or an LTSY that was not achievable. SPI agrees to harvest limits set by the Option A and the public's interest is to assure that any proposed harvests levels are sustainable. Since the State cannot compel a land owner to harvest greater volumes as long as proposed harvests are sustainable, there is no reason to require an Option A to be updated because it underestimated the volume that could be sustainably cut.

The commenter claims that, based upon our earlier response to their comment letter of May 27th, our Option A was also inadequate because it does not reflect significant deviations in forest volume growth anticipated by SPI over the remaining years in its planning horizon. It is important to note all of the significant deviations were in the direction of projecting future growth conservatively. We have chosen not to include future expected growth and LTSY increases from the 20% CDF recommended yield reduction, tree improvement efforts, and potential CO₂ fertilization because we will need much more definitive measurement on how to quantify such effects,. In regards to the 20% yield reduction, we will soon have hard data from measured growth performance for plantations we have established over the last decade. In regards to tree improvement, and potential CO₂ fertilization, that data will develop over a longer time period as real growth is compared to modeled growth without these effects. All expectations are that SPI's estimates of growth are well below actual growth. CEQA does not encourage speculation and to draw further conclusions without data, when hard data will be available shortly to make any needed adjustments, would serve no useful purpose.

We are in the process of designing the sampling plan and a system of establishing permanent monitoring plots to measure the expected future yield increases. To date we have found no existing data and made no observations which would support any conclusion other than our working hypothesis that projected yields are understated in the current tables. Since all of the expected changes in the model would project the availability of timber to support increased harvest levels and increased LTSY we can update our Option A at the time we believe we have the data to support the future estimates. We have chosen not to

include future expected growth and LTSY increases from ownership acreage increases as it should be clear that including more timberland, with more inventory, and additional growth would only increase our current estimate of LTSY. We have chosen to include these lands without adjusting our demonstration of MSP. Since the State's interest is to assure that current harvest is at a level that is consistent with and does not prevent achievement of projected LTSY, and the State cannot and should not compel harvesting by a landowner who chooses to conservatively estimate LTSY SPI's decision to limit harvesting to the levels dictated by that conservative projection, is clearly meeting the intent of the Forest Practice Act and the implementing regulations (913.11, 933.11 and 953.11). Our approach of conservative modeling and updating these modeling efforts with actual measured growth overtime is also entirely consistent with the CEQA impetus to avoid speculation. In fact the commenter would likely be the first to challenge modeling efforts that include these potential increases before actual measurements can demonstrate they are occurring and the level to which projections should be adjusted.

The commenter claims that because we have used conservative modeling and have harvested less than allowed under our Option A that these issues require an update to the Option A. This would be true if such an update would produce greater limitations on LTSY or cause lower limits on our harvest levels. All of these conservative estimates if corrected would produce higher LTSY and potentially higher current harvest limits. None of these issues fall into the definition of "limits on productivity" that must be discussed in an Option A, rather they fall into the portion of the rule that the commenter conveniently chose to omit in their citation, which is the lead in sentence in the rule, "producing the yield of timber products specified by the landowner". The complete 953.11(a)(1) is shown below.

(1)Producing the yield of timber products specified by the landowner, taking into account biologic and economic factors, while accounting for limits on productivity due to constraints imposed from consideration of other forest values, including but not limited to, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment and aesthetic enjoyment. (bold text and underline added for emphasis)

Future enhancements of yield by tree improvement, better spacing control, acquiring more land and actual yield measurements in plantations are not "limits on productivity" and are both at the discretion of the landowner and within their right to produce the yield of timber products they specify as long as they demonstrate that yield can be sustained.

The commenter also claims that these conservative estimates and our own self imposed 10% deviation limits would require an Option A update. To clarify that lead in sentence, again the State has no authority to compel harvest therefore the only deviations that would require an Option A update as stated are those deviations or harvests that exceed or are greater than projected limits. SPI has the ability to recoup lost volume due to under-harvesting in a subsequent year when market conditions dictate. Our decision to harvest less than allowed is entirely our right and if we so choose to harvest up to the modeled limits at a later date that also is our right. Thus harvesting less than allowed should merely be an issue of timing and not a reason by itself to require Option A updating.

The commenter claims the following on page 9 of their letter:

"Lastly, SPI asserts that its 1999 Option A Demonstration understates the true LTSY by 20% due to a request from CDF to reduce their long-term projections by this amount. (Revised THP 4-08-05, Section V, p. 115.5.) This is a surprising assertion since there is no mention in the 1999 Option A Demonstration itself regarding such a "pre-cautionary reduction." (Id. at 115.7.)"

and again on page 9/10 of their letter:

"However as noted, there is no mention of a 20% "pre-cautionary reduction." As with the other assertions now advanced by SPI to argue that its LTSY is materially understated, CDF should require SPI to update its Option

A Demonstration to fully disclose and explain any such "pre-cautionary" reductions underlying its LTSY projection."

Yet on page 18 of the aforementioned Option A document we find the following:

"The future projections of plantation growth have been guided by UC Berkeley cooperative research. While we are confident they will materialize over time, we reduced those research projected yields by 20% in our modeling effort."

On page 17:

"As we track actual performance of plantations over the next few decades, the desired 80-year rotation could change, given our conservative growth estimates. This change would be based upon our ability to better estimate effects from tree improvement programs, and the ever-increasing knowledge of how to manage habitat for various wildlife species. Such a potential change would be discussed in future Option A submission efforts."

On page 20:

"SPI has an active tree improvement program, but currently has not modeled any increase yield as a result of these efforts."

On page 19:

"SPI continues to invest in tree improvement and superior tree seed collection etc, all which are known to increase yield. None of these increases are included in future growth projections."

And finally also on page 19:

"Note: virtually every board foot of production predicted by this plan for the next fifty years comes from trees that are already in the ground, sampled in our inventory and being grown by Cactus with regional calibration. Should it become necessary, there would be ample time in which to make any necessary corrections based on tracked plantation performance."

The commenter's statements about not disclosing to the public that our projections are conservative and will be updated as actual measurements dictate are false. We believe our Option A fully meets the disclosure and non-speculation requirements of CEQA.

The second specific claim by the commenter is that our Option A is informationally inadequate because it excludes any analysis of the impacts of climate change on SPI's future harvest growth, and that the Option A is technically embedded in and re-submitted with each THP and therefore is open to comment and potential change with each THP. The primary information that the commenter relies on to claim some deficiency with our Option A is the so called Battles Study. SPI's personal communication with Professor Battles reveals that the draft results the commenter cited are incorrect. Professor Battles and his co-authors have revised their work due to issues with the way the plantation growth data was computer modeled. The authors noted these inconsistencies and, using real plantation tree measurements to establish their starting stand conditions now report under all future climate scenarios an approximate 20% increase in future plantation growth. This new information came from Professor John J. Battles in a personal communication. He would have gladly provided an updated copy of the new results but they are currently in peer review by the California Energy Commission who commissioned the work. These new results are expected to be published by the Energy Commission in early 2009 and may be available within the decision timeframe for this THP. Since the commenter's original letter in March of 2008, this same group of researchers have released estimates for pine plantation growth under future climate scenarios that ranged from a 31% decline to a 20% increase.

While we believe that their most recent work more accurately models forest growth and has been adjusted for concerns raised as a result of their original case study, it still does not warrant updating our Option A. So while the commenter would demand that we run a speculative update of future yield predictions every time a model predicts a different future, SPI will update them based upon real measurements in our real plantations and do that on a timely basis when we have those results. In the THP process, if there were any actual information that our modeling was overestimating current harvest limits or future LTSY levels in a way that would call into question the sustainability of our current harvest levels, we would immediately undertake necessary updates to our Option A and adjust our current harvest levels.

In response to the commenter's third main claim that our THP does not identify and mitigate the harvest plan's significant contribution to global warming, SPI offers the following discussion. First a site specific analysis of similar lands under similar management is provided by SPI on our website. (James, C. , etal) (http://www.spi-ind.com/html/pdf_forests/CARBONSEQUESTRATION.pdf) This study has been peer reviewed and is being submitted to the Society of American Forester's professional journal for publication. The study demonstrates that ,starting with the forest conditions that exist today, SPI management as compared to other potential management schemes significantly increases the sequestering of carbon dioxide (CO₂) from the atmosphere. Far from being a source of green house gasses, our management creates a significant net sink for atmospheric carbon dioxide by both increasing standing carbon inventory in the woods, but also in safely stored offsite carbon in the form of harvested wood products. Instead of being a significant adverse source of CO₂ our management is actually a substantial mitigation to CO₂ being emitted to the atmosphere by our use of fossil based fuel. Worldwide, forests are being relied on as a substantial part of the solution to reduce greenhouse gasses because of their potential to sequester carbon. It is important to note that the actual contribution forests make to reduce greenhouse gasses depends on where these forests are on the planet, how they are managed into the future, and what has happened to them in the past. It would be inappropriate to generalize from SPI management practices in the northern temperate forests to tropical forests or boreal forests or even to old growth northern temperate forests. Taking snippets and generalizations out of global climate change reports or research on tropical, old growth or boreal forests can be very misleading. For example on page 5 of the commenter's letter they completely misunderstand a discussion provided by SPI. In the Battles study, they find little or no trend in winter precipitation levels in the forested elevations of California. This is important because in these temperate Mediterranean climate forests most if not all of the precipitation that results in the following years growth occurs in the winter and is stored in the soil and is drawn out of the soil by tree roots. Northern temperate forests are not heavily impacted (relative to other forest types) by changes in precipitation because the soil has rechargeable capacity which takes the first water and holds it for later use. Moreover, reductions in total rainfall aren't currently predicted to occur in California according to the Battles study using the range of potential climate models. While some climate models indicate less snow and more rain, that still does not impact the forest vegetation's ability to continue to grow because the forest depends on water that is stored in the soil. This change from snow to rain is important in the global sense because if the amount or duration of snow pack is altered, it impacts the amount and timing of runoff which can affect domestic use and agriculture. It does not necessarily affect forest vitality because no runoff occurs until the soil has been recharged. The result is that a plantation of well spaced trees may be unaffected at the same time there are serious effects on human and agricultural use. Although SPI did not assume that photosynthesis may increase in the winters, with available water we will likely see increased growth in young forests on fertile soils as both the "*Scientific Assessment of the Effects of Global Change on the United States*", A Report of the US Climate Change Science Program's Committee on Environment and Natural Resources of the National Science and Technology Council dated May 2008 (USCCSP 2008) and the newest Battles work indicate.

In addition to the James et al study on similar lands under similar management, which shows SPI's management will increase sequestration significantly, our Option A demonstration of MSP also demonstrates that far from a source of GHGs SPI's management is a significant sink of GHGs over the next 100 years. The SPI Option A shows increased average tree diameter, increased total volume and increased sustainable harvest volumes. Thus SPI has demonstrated that the in-forest stock of carbon increases significantly. In addition the amount of long lived wood products produced annually also increases over time. These products are stored off-site and are subject to less risk of wildfire and other events that could quickly emit them back into the atmosphere as CO₂. Therefore, for the coming century, SPI's proposed management in this THP in the context of our total property, and in the context of offsite stored carbon is beneficial in reducing GHGs.

When looking at these issues from a larger social view and drawing a comparison between wood and alternative building products, it is apparent that wood produces fewer GHG's (has a lower carbon footprint) than all other available building materials including concrete, steel, aluminum or brick. (see www.corrim.org).

Finally, while we have shown at the scale of SPI's ownership via the Option As and in an even larger sense at a global view, our project produces significant carbon benefits in the context of standing inventory of carbon on our lands and available building materials that reduce carbon footprints. We will now proceed to an analysis of the direct emissions from the actual harvest of the forests as compared to the carbon stored offsite by that action.

GREEN HOUSE GAS(ghg) ANALYSIS FOR SPI LOGGING

Importantly, this analysis begins where the earlier discussion ended; that is annually, our inventory increases, net of harvesting. The total carbon stored in our forests increases after all harvesting has been deducted. We have annually already sequestered an amount greater than we have harvested. Our analysis thus compares the green house gas (GHG) emissions as a ratio of the GHG offset or the GHG permanently stored in end use over a 100 years as solid wood products. The 100 year permanency period is the same as that used by the California Climate Action Registry for its analysis of a permanent carbon offset. This analysis only counts the average carbon that is stored in wood products over 100 years of use and accounts for all emissions from these logs by the saw mill, and all subsequent downstream users of that wood.

Falling trees and removing the logs from the forest requires the use of equipment burning fossil fuels, typically loaders, log trucks, chain saws, cats and yarders. Hence while there is net carbon sequestration in significant quantities resulting from forest management, (photosynthesis from the growing of trees) there is some carbon emission generated by converting timber into logs and moving the logs to the mill. Our forests are managed second and third growth and not old growth so we do not analyze converting an old growth forest to a managed forest just as we do not analyze management of other forest types. As revealed below carbon sequestration greatly exceeds carbon emissions resulting from the entire process. We do not analyze all harvesting methods with respect to the production of carbon gasses. We analyze what would be a typical worst case scenario for getting timber out of the woods to the mill. The greatest emissions will come from what is called a mechanized harvesting system. In this logging method fuel consuming harvesting machines actually cut the trees, tractors are used to bring the logs to a landing where they are processed into proper lengths by another diesel burning piece of equipment and finally loaded onto a truck and hauled to the mill. The below calculations assume the worst case carbon emission scenario per board foot of wood harvested using a mechanized harvesting, tractor yarding system and delivered by truck including a reasonable haul distance to the mill. This calculation also assumes the fact expressed by our Option A that there will be a continued increase in both tree inventory

and increasing harvest levels overtime in our 100 year outlook. Therefore net harvest volume is offset by net increases in the in-woods carbon pool. (For example if there was 100 tons of carbon sequestered in a hypothetical forest, and we harvest 1 ton of that carbon, as a result of our management, forest growth not only replaces that harvest, but would increase the total to 103 tons.) As the inventory of standing trees increases over time the volume of allowable harvested wood also increases and the amount of sequestered carbon increases over the 100 year planning period. As more wood is being harvested and used in products more carbon is sequestered outside of the forest environment (in building structures, and wood products).

Of course some wood taken out of the forest will be reconverted to CO₂, thereby to some extent restocking the atmosphere with CO₂. The following analysis also accounts for only those wood products in-use after 100 years and still retaining carbon and thus also accounts for restocking or "process loss" of sequestered carbon. For example some of the manufactured lumber will be thrown away and burned within the 100 year window. Beyond 100 years people will no doubt develop ways of minimizing process loss through hi-tech controlled combustion for energy production and perhaps other kinds of wood waste based energy sources or carbon storage methods. In the past and currently, a significant proportion of carbon in wood products is deposited in landfills and eventually becomes soil carbon and thus sequestered away from the atmosphere. Due to uncertainty of landfill recycling and energy diversion efforts in the future, we conservatively treat all that sequestered carbon as if it was emitted in the following calculation. We do not attempt any sort of estimated quantification beyond the next 100 years because with rapid changes in technology it is too speculative. See detail calculations on the next page.

Mechanized logging side for merchantable logs

OBT 8.75 gallons of diesel/mbf to log and put on board truck (OBT)
Haul 8.75 gallons of diesel/mbf to haul to a mill
2 trip per day (SPI average haul is more than 2 trips per day)

Chipping of tops and sub-merchantable material

OBV 1.43 gallons of diesel/green ton to gather, chip and place on board a chip van (OBV)
Haul 1.53 gallons of diesel/green ton to haul to a biomass plant or a mill with cogen
2 trip per day (SPI average biomass delivery is more than 2 trips per day)

Using the World Resources Institute Mobile Emissions Worksheet

Summary of CO ₂ Emissions (in metric tonnes CO ₂)									
A	B	C	D	E1	E2	F	G1	G2	I
	Fuel used		Energy used			Emissions Factor		Emissions	
	Amount of	Type of Fuel Used	GJ per Fuel Unit		GJ energy	kg CO ₂ per GJ		metric tonnes	
Source	fuel used	Fuel	Fuel	Default	Custom	Used	Default	Custom	H = F x G / 1000
Description		Units	Type	GJ/unit	GJ/unit	F = B x E	kg CO ₂ /GJ	CO ₂ /GJ	Metric ton CO ₂
Logs/MBF									
OBT	8.75	US gals	Diesel	0.140424		1.23	74.010		0.0909
Haul	8.75	US gals	Diesel	0.140424		1.23	74.010		0.0909
Metric Tons of CO ₂ e per MBF Short Log Scribner									0.1819
Chips/Green Ton									
OBV	1.43	US gals	Diesel	0.140424		0.20	74.010		0.0149
Haul	1.53	US gals	Diesel	0.140424		0.21	74.010		0.0159
Metric Tons of CO ₂ e per Green US ton of biomass									0.0308

Biomass Rule of thumb is 1 BDT of biomass roughly produces 1 MWH of electricity and 1 MWH of electricity produced by burning natural gas (fossil fuel) produces 1 metric ton of CO₂ therefore 1 BDT of biomass offsets 1 metric ton of CO₂ from fossil fuel. (TSS 2006 - consultants for Placer County Air Quality Control Board)

1 green US ton of chips / hog fuel
0.5 US ton dry weight (BDT)
2 green tons biomass equals 1 BDT and = 1 Metric ton CO₂ equivalent
0.06153 Metric tons of CO₂e to produce 2 green tons biomass (0.0308 * 2)

16.25 ratio of CO₂ equivalent produced per metric ton of CO₂ emitted in gathering, chipping and hauling.

SPI 2008 Scaled & Weighed Loads

13,632 Loads
59,670.6 MBF
366,507.11 Green Tons

Logs

6.14217 Ave. Green tons per MBF based upon the 13,632 weighed and scaled loads in 2008.
3.07109 Ave Dry tons per MBF (using a 50% average for moisture content)
2.07298 Ave Dry tons that after milling remains in softwood lumber (67.5%)
based on mill efficiency for the US Southwest from 1605b table 1.4 (67.5%) (SPI efficiency is higher)
(Note: this 32.5% is not emitted but goes into both hog fuel and paper chips) Again a conservative estimate of our benefits.
0.97430 Ave Dry tons in softwood lumber after 100 years in use. Again at least 25% is permanently stored in landfills not emitted.
based upon average in use lumber from the 1605b table 1.8 (47% is the average 100 year end use estimate)
0.48715 Ave Dry tons of Carbon in softwood lumber based upon the percent Carbon in wood being 50%
0.43498 converted Ave Dry tons above from English tons to metric tons. (Internationally CO₂ is always discussed in metric tons)
1.59492 converted tonnes of Carbon to tonnes of CO₂ equivalents per MBF in log form. (0.1819 metric tons emitted per MBF)

8.77 ratio of long term stored CO₂ in softwood lumber in end uses to the CO₂ emitted in logging and hauling

In conclusion, this worst case scenario for net GHG emissions at the scale of each thousand board feet (mbf) harvested, shows that logging sequesters 8.77 tons of CO₂ in permanent off-site stored solid wood products for each ton of CO₂ emitted. In some areas waste from harvesting (called biomass), consisting of sub-merchantable trees, tree tops and branches and the like is removed from the forest and used as fuel in biomass cogeneration plants producing steam and electricity. Using this bio mass to generate electricity and steam nets 16.25 tons of CO₂ benefits for each ton of CO₂ emitted in the collection process. However, the decision to not remove biomass from a particular harvest site does not cause net emissions of ghgs because our Option A demonstrates that net of all biomass removals we still increase total carbon stored in the forest (in growing trees) each year.

Since we analyzed the worst case in fuel emission, all other harvesting systems have lower emissions per mbf or green ton of biomass and will have even greater benefits than calculated. Thus after conducting this ghg assessment at 3 scales of analysis (SPI's entire ownership, society's use of wood products, and at the project scale) we conclude that we are not causing any significant adverse impact on the condition of green house gases, and that we actually produce a net carbon benefit of considerable magnitude by removing CO₂ from the atmosphere and storing the carbon in our forests and wood products.

References Cited

- Battles, John J., Robards, T., Das, A., Waring, K., Gilless JK., Biging, G., Schurr, F., (2008) Climate change impacts on forest growth and tree mortality: a data-driven modeling study in the mixed conifer forest of the Sierra Nevada, California. *Climatic Change* (2008) 87 (Suppl 1):S193–S213
- Newest Battles, John J. – personal communication with John J. Battles PhD concerning re-worked modeling based upon real plantation data (November 2008)
- DOE 1605b - U.S. Dep. Of Energy - Technical Guidelines for Voluntary Reporting of Greenhouse Gas Program, Chapter 1, Emission Inventories, Part I: Appendix. The material presented in Appendix Section 1 is adapted from a USDA Forest Service General Technical Report (Smith et al. 2006).
- James, C. , B. Krumland, and P. J. Eckert. 2007. Carbon Sequestration in Californian Forests: Two Case Studies in Managed Watersheds, A Sierra Pacific Industries Report. Available at: http://www.spi-ind.com/html/pdf_forests/CARBONSEQUESTRATION.pdf
- Lenihan JM, Bachelet D, Drapek R, Neilson RP (2006) The response of vegetation distribution, ecosystem productivity, and fire in California to future climate scenarios simulated by the MC1 Dynamic Vegetation Model. Public Interest Energy Research, California Energy Commission. CEC-500-2005-191-SF
- USCCSP (2008) The US Climate Change Science Program's "Scientific Assessment of the Effects of Global Change on the United States", A Report of the Committee on Environment and Natural Resources of the National Science and Technology Council dated May 2008 263 pgs. Available at <http://www.climate-science.gov/Library/scientific-assessment>

SQUIGGLY THP

Domestic Water Information Request Mailing List for neighbors 1,000 feet Downstream of THP

**Lyle R Hollingsworth
107 Huron Ave.
San Mateo, CA 94401**

**Piero & Jill Martinucci
1520 Holly Street
Berkeley, CA 94703**

**Rose Marie Sivils
4633 Hibiscus Rd.
Stockton, CA 95212**

**Tom & Jane Lowry
10950 Tabeau Rd.
Pine Grove, CA 95665**

**Norman B Bettini
1360 Miravalle Ave.
Los Altos, CA 94022**

**Paul & Camey Joerke
17556 N Devries Rd.
Lodi, CA 95242**

**Timothy S Eitzen
2135 Cactus CT #6
Walnut Creek, CA 94595**

**Rolland & Norma Johnson
12424 Mundy Rd.
Lodi, CA 95240**

**Kenneth R Gordon
111 Blue Jay CR RD
Boise, ID 83716**

**Daniel & Virginia Landreth
PO BOX 231
Railroad Flat, CA 95248**

**Thomas & Jeannine Dougherty
23525 N Sowles Rd
Acampo, CA 95220**

**Nancy & Kevin Furlong
270 Cedar Mountain Dr.
Tracy, CA 95376**

**Jerry Castro
4045 Pacific Ave.
Stockton, CA 95207**

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

Phone (209) 223-7170

Fax (209) 223-7175

October 24, 2007

Lyle R Hollingsworth
107 Huron Ave.
San Mateo, CA 94401

Sierra Pacific Industries is proposing a Timber Harvest Plan (THP) adjacent to your land within Calaveras County. The THP is wholly within the Lower Blue Creek planning watershed. The THP is located in portions of sections 13, 14, 15, 22, 23, 24, 26 & 27, T7N, R15E, and sections 19 & 30, T7N, R16E, MDB&M. Streams that flow partially within and adjacent to the Timber Harvest plan are Blue Creek, unnamed tributaries to Blue Creek, and Cherry Creek. Please see the enclosed map.

The State of California Forest Practice Regulations require the RPF preparing the plan to contact all property owners with Class I, II or IV watercourses that receive surface water runoff within 1000 feet downstream of proposed timber operations. A review of parcel and topographic maps indicates that your ownership is adjacent to a watercourse that may receive surface runoff from areas affected by planned timber operations.

The Forest Practice Rules define Domestic Water Use as "the use of water in homes, resorts, motels, organization camps, developed campgrounds, including the watering of domestic livestock for family sustenance or enjoyment and the irrigation of not more than one half acre of lawn, ornamental shrubbery, or gardens at any single establishment. The use of water at a developed campground or resort for human consumption, cooking or sanitary purposes is a domestic water use."

Please contact me at the address or phone number listed above if you have any information or questions regarding a domestic water supply. If I do not hear from you within ten days of the date on this letter, I will assume there is not a domestic water use concern. Thank you for your cooperation.

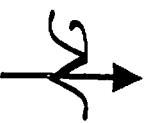
Sincerely,

Frank Mulhair,
Forester
SPI Martell District

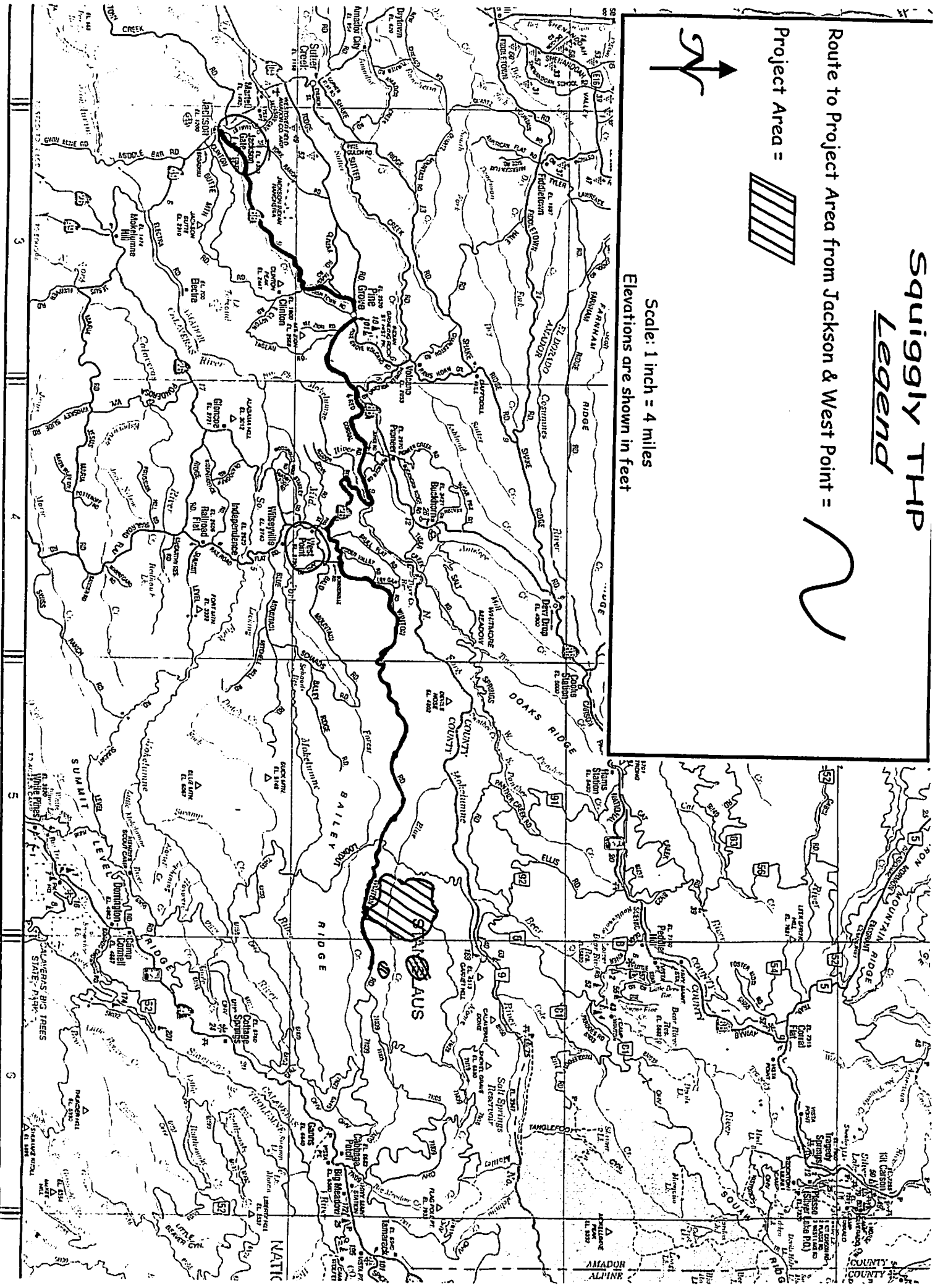
Squigly THP Legend

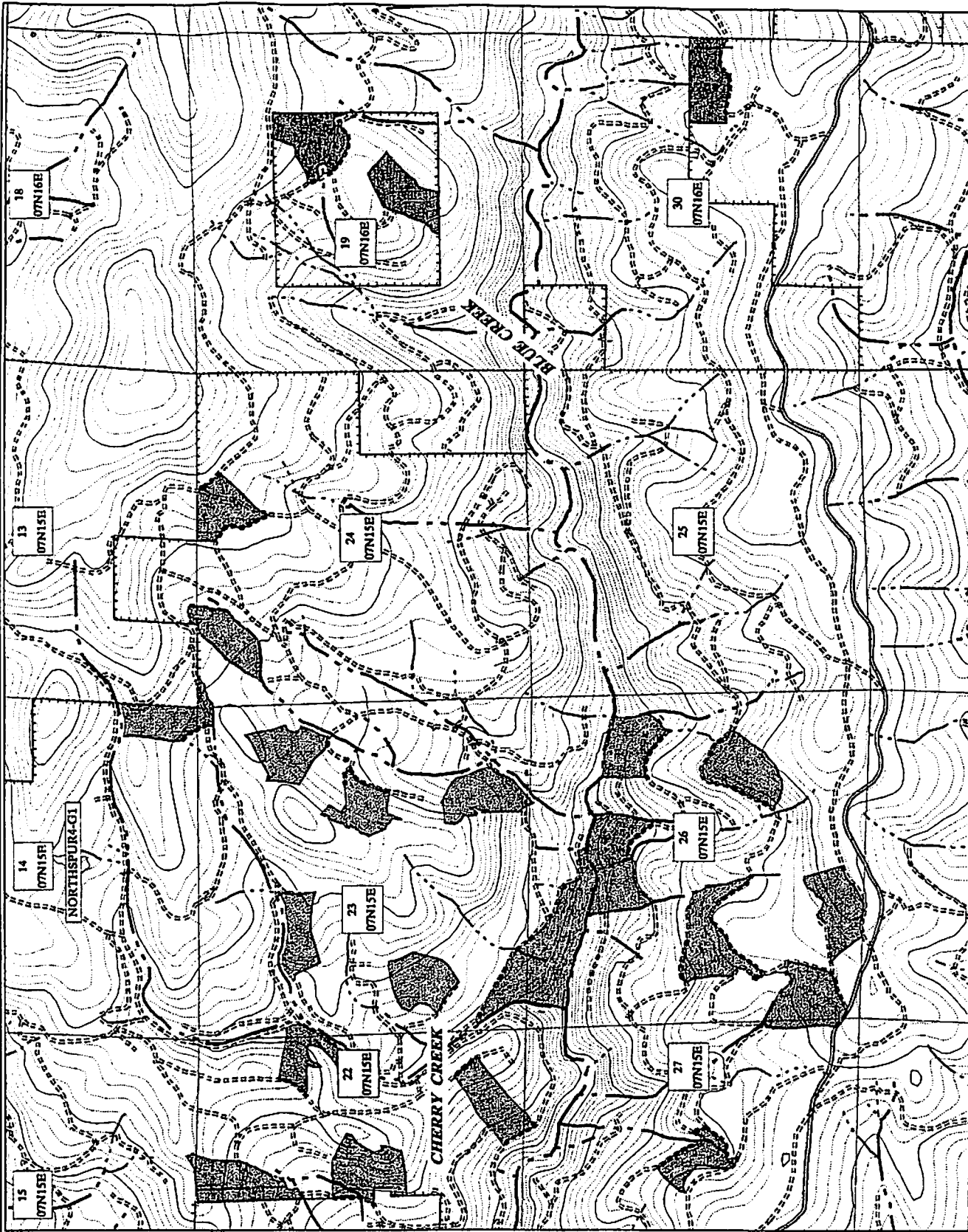
Route to Project Area from Jackson & West Point =

Project Area =



Scale: 1 inch = 4 miles
Elevations are shown in feet





Sierra Pacific Ind. Ownership

Squiggly Project Area

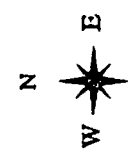
Permanent Roads

Seasonal Road

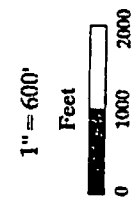
Class I Watercourse

Class II Watercourse

Class III Watercourse



Contour Interval = 40'



GENERAL LOCATION SQUIGGLY TWP

Timber Harvest Plan Area
 Portions of Garnet Hill & Calaveras Dome USGS Quadrangle Map
 sections 13, 14, 15, 22, 23, 24, 25, 26, 27; T7N, R15E, MDB&M
 sections 19 & 30; T7N, R16E, MDB&M

Proof of Publication of

Sierra Pac. Indust. – Legal Notice

DOMESTIC WATER SUPPLY NOTICE

A Timber Harvest Plan is being prepared in portions of sections 13, 14, 15, 22, 23, 24, 26 & 27, T7N, R15E, and sections 19 & 30, T7N, R16E, MBD&M, Calaveras County. It is requested that the Plan Submitter, Sierra Pacific Industries, be advised within 10 days, if any domestic water supply or known usage, which exists within 1000 feet downstream of the Plan Boundary on Blue Creek or Cherry Creek. The Plan Submitter can be contacted at P.O. Box 132, Martell, CA 95654, Attention Frank Mulhair. Publish: October 19, 2007CE

Proof of Publication

(2015-5 C.C.P.)

This space is for the County Clerk's Filing Stamp

STATE OF CALIFORNIA,

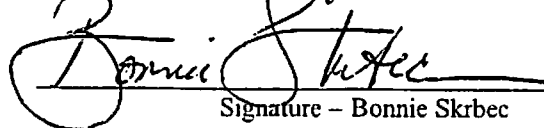
County of Calaveras.

I am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years and not a party to or interested in the above matter. I am the principal clerk of the printer of the Calaveras Enterprise, a newspaper of general circulation, printed semi-weekly, in the City of San Andreas, California, County of Calaveras, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court, of the County of Calaveras, State of California; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates; to-wit:

October 19, 2007

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated the 19th day of October 2007CE


Signature – Bonnie Skrbec

CALAVERAS ENTERPRISE

15 North Main Street
P.O. Box 1197, San Andreas, CA 95249-1197
(209) 754-3861 - FAX (209) 754-5135

PROOF OF PUBLICATION

Estimated Surface Soil Erosion Hazard
Information from USDA USFS SCS Soil Survey of Stanislaus National Forest Area, California

SQUIGGLY

I. Soil Factors				Soil Ratings						
A. Soil Texture	Fine	Moderate	Coarse		A	B	C	D	E	F
1. Detachability rating	Low	Moderate	High							
	1 to 9	10 to 18	19 to 30		21	21	21	9	9	9
2. Permeability rating	Slow	Moderate	Rapid							
	5 to 4	3 to 2	1		1	1	1	3	3	3
B. Depth To Restrictive Layer or Bedrock										
	Shallow	Moderate	Deep							
	1" to 19"	20" to 39"	40" to 60"							
rating	15 to 9	8 to 4	3 to 1		2	2	2	3	3	3
C. Percent Surface Coarse Fragments Greater Than 2mm in Size including Rocks or Stones										
	Low	Moderate	High							
	1 to 39%	40 to 70%	71 to 100%							
rating	10 to 6	5 to 3	2 to 1		7	7	7	8	8	8
Subtotal =					31	31	31	23	23	23

II. Slope Factor												
slope rating	5 to 15%	16 to 30%	31 to 40%	41 to 50%	51 to 70%	71 to 80%	A	B	C	D	E	F
	1 to 3	4 to 6	7 to 10	11 to 15	16 to 25	26 to 35	6	12	5	10	6	10
III. Protective Vegetative Cover Remaining After Disturbance												
	Low	Moderate	High									
	0 to 40%	41 to 80%	81 to 100%									
rating	15 to 8	7 to 4	3 to 1				10	10	10	10	10	10
IV. Two year, one Hour Rainfall Intensity (Hundredth inch)												
	Low	Moderate	High	Extreme								
	(-)30 to 39	40 to 59	60 to 69	70 to 80(+)								
rating	1 to 3	4 to 7	8 to 11	12 to 15			9	9	9	9	9	9

Erosion Hazard Rating

	Low	Moderate	High	Extreme						
	<50	50 to 65	66 to 75	>75						
The Determination =					56	62	55	52	48	52
					M	M	M	M	L	M

Soil Spreadsheet Code and Types:

A	116	Gerle family	5% to 35%
B	117	Gerle family	35% to 50%
C	120	Gerle	5% to 35%
D	138	Holland	35% to 50%
E	159	Josephine family	5% to 35%
F	160	Josephine family	35% to 70%

Estimated Surface Soil Erosion Hazard
Information from USDA USFS SCS Soil Survey of Stanislaus National Forest Area, California

SQUIGGLY

I. Soil Factors				Soil Ratings						
A. Soil Texture	Fine	Moderate	Coarse		G	H	I	J	K	L
1. Detachability rating	Low	Moderate	High							
	1 to 9	10 to 18	19 to 30		15	15	15	25	21	21
2. Permeability rating	Slow	Moderate	Rapid							
	5 to 4	3 to 2	1		2	3	3	5	2	2
B. Depth To Restrictive Layer or Bedrock										
	Shallow	Moderate	Deep							
	1" to 19"	20" to 39"	40" to 60"							
rating	15 to 9	8 to 4	3 to 1		12	4	4	10	3	3
C. Percent Surface Coarse Fragments Greater Than 2mm in Size including Rocks or Stones										
	Low	Moderate	High							
	1 to 39%	40 to 70%	71 to 100%							
rating	10 to 6	5 to 3	2 to 1		4	4	4	2	8	8
Subtotal =					33	26	26	42	34	34

II. Slope Factor												
slope	5 to 15%	16 to 30%	31 to 40%	41 to 50%	51 to 70%	71 to 80%	G	H	I	J	K	L
rating	1 to 3	4 to 6	7 to 10	11 to 15	16 to 25	26 to 35	6	10	6	13	9	8
III. Protective Vegetative Cover Remaining After Disturbance												
	Low	Moderate	High									
	0 to 40%	41 to 80%	81 to 100%									
rating	15 to 8	7 to 4	3 to 1				2	10	10	3	8	10
IV. Two year, one Hour Rainfall Intensity (Hundredth inch)												
	Low	Moderate	High	Extreme								
	(-)30 to 39	40 to 59	60 to 69	70 to 80(+)								
rating	1 to 3	4 to 7	8 to 11	12 to 15			9	9	9	9	9	9

Erosion Hazard Rating

	Low	Moderate	High	Extreme							
	<50	50 to 65	66 to 75	>75							
The Determination =					50	55	51	67	60	61	

Soil Spreadsheet Code and Types:

G	166	Lithic Cryumbrepts	5% to 35%
H	176	McCarthy family	5% to 35%
I	179	McCarthy family	5% to 35%
J	183	Rock Outcrop	
K	191	Wilder - Oval family complex	5% to 35%
L	192	Wilder - Oval family complex	35% to 50%

M	M	M	H	M	M
---	---	---	---	---	---

Estimated Surface Soil Erosion Hazard
Information from USDA USFS SCS Soil Survey of Stanislaus National Forest Area, California

SQUIGGLY

I. Soil Factors				Soil Ratings						
A. Soil Texture	Fine	Moderate	Coarse		M	N	O	P	Q	R
1. Detachability rating	Low	Moderate	High							
	1 to 9	10 to 18	19 to 30		21	21	21	21	21	21
2. Permeability rating	Slow	Moderate	Rapid							
	5 to 4	3 to 2	1		2	2	2	2	1	2
B. Depth To Restrictive Layer or Bedrock										
	Shallow	Moderate	Deep							
	1" to 19"	20" to 39"	40" to 60"							
rating	15 to 9	8 to 4	3 to 1		3	3	4	4	2	3
C. Percent Surface Coarse Fragments Greater Than 2mm in Size including Rocks or Stones										
	Low	Moderate	High							
	1 to 39%	40 to 70%	71 to 100%							
rating	10 to 6	5 to 3	2 to 1		4	4	5	5	7	8
Subtotal =					30	30	32	32	31	34

II. Slope Factor												
slope rating	5 to 15%	16 to 30%	31 to 40%	41 to 50%	51 to 70%	71 to 80%	M	N	O	P	Q	R
	1 to 3	4 to 6	7 to 10	11 to 15	16 to 25	26 to 35	9	10	6	12	20	20
III. Protective Vegetative Cover Remaining After Disturbance												
	Low	Moderate	High									
	0 to 40%	41 to 80%	81 to 100%									
rating	15 to 8	7 to 4	3 to 1				10	10	10	10	6	10
IV. Two year, one Hour Rainfall Intensity (Hundredth inch)												
	Low	Moderate	High	Extreme								
	(-)30 to 39	40 to 59	60 to 69	70 to 80(+)								
rating	1 to 3	4 to 7	8 to 11	12 to 15			9	9	9	9	9	9

Erosion Hazard Rating

	Low	Moderate	High	Extreme						
	<50	50 to 65	66 to 75	>75						
The Determination =					58	59	57	63	66	73

Soil Types:				Unit #			
Cable	M	193	Windy family	5% to 35%	M	M	M
	N	194	Windy family	35% to 50%			
	O	195	Windy family	5% to 35%			
	P	196	Windy family	35% to 60%			
	Q	117	Gerle family	35% to 50%			
Cable	R	191	Wilder - Oval family complex	5% to 35%			

Determination of 100-Year Flood Flow

Magnitude and Frequency Method for 100-year flood flow

Location: SQUIGGLY

(Enter data in fields with red-colored headings. Other data fields will be calculated automatically.)

Magnitude and Frequency Method for 100-year flood flow

100-yr flood flow Q_{100} (cfs)

No.	Crossing	Area (acres) A	Basin maximum elevation (ft)	Crossing elevation (ft)	Area (mi ²) A	Precipitation (in/yr) P	Elevation (ft/1000) H	North Coast ⁽¹⁾ (NC)	Sierra ⁽²⁾ (S)	North- east ⁽³⁾ (NE)	Central Coast ⁽⁴⁾ (CC)
1											
2	P2	230	5560	4640	0.359	48	5.1	161.9	183.8	68.3	120.8
3											
4											
5											
6											
7											
8											
9											
10											

See below for M&F equations

Rational Method for 100-year flood flow

$$T_c = 60((11.9 \times L^3)/H)^{0.385}$$

$$Q_{100} = CIA$$

No.	Crossing	Channel length (to top of basin) (mi) L	Elevation difference (ft) H	Concentra- tion time (min) Tc	Runoff coefficient C	Precipitation (in/hr) I	Area (acres) A	100-yr flood flow (cfs) Q100
1								
2	P2	0.77	920	8	0.3	2.2	230	151.8
3								0.0
4								0.0
5								
6								0.0
7								0.0
8								0.0
9								
10								

Magnitude & Frequency Q_{100} equations

NC (1) $Q_{100} = 9.23 (A)^{0.87} (P)^{0.97}$
 S (2) $Q_{100} = 15.7 (A)^{0.77} (P)^{1.02} (H)^{-0.43}$
 NE (3) $Q_{100} = 125 (A)^{0.59}$
 CC (4) $Q_{100} = 19.7 (A)^{0.88} (P)^{0.84} (H)^{-0.33}$

Template prepared by:

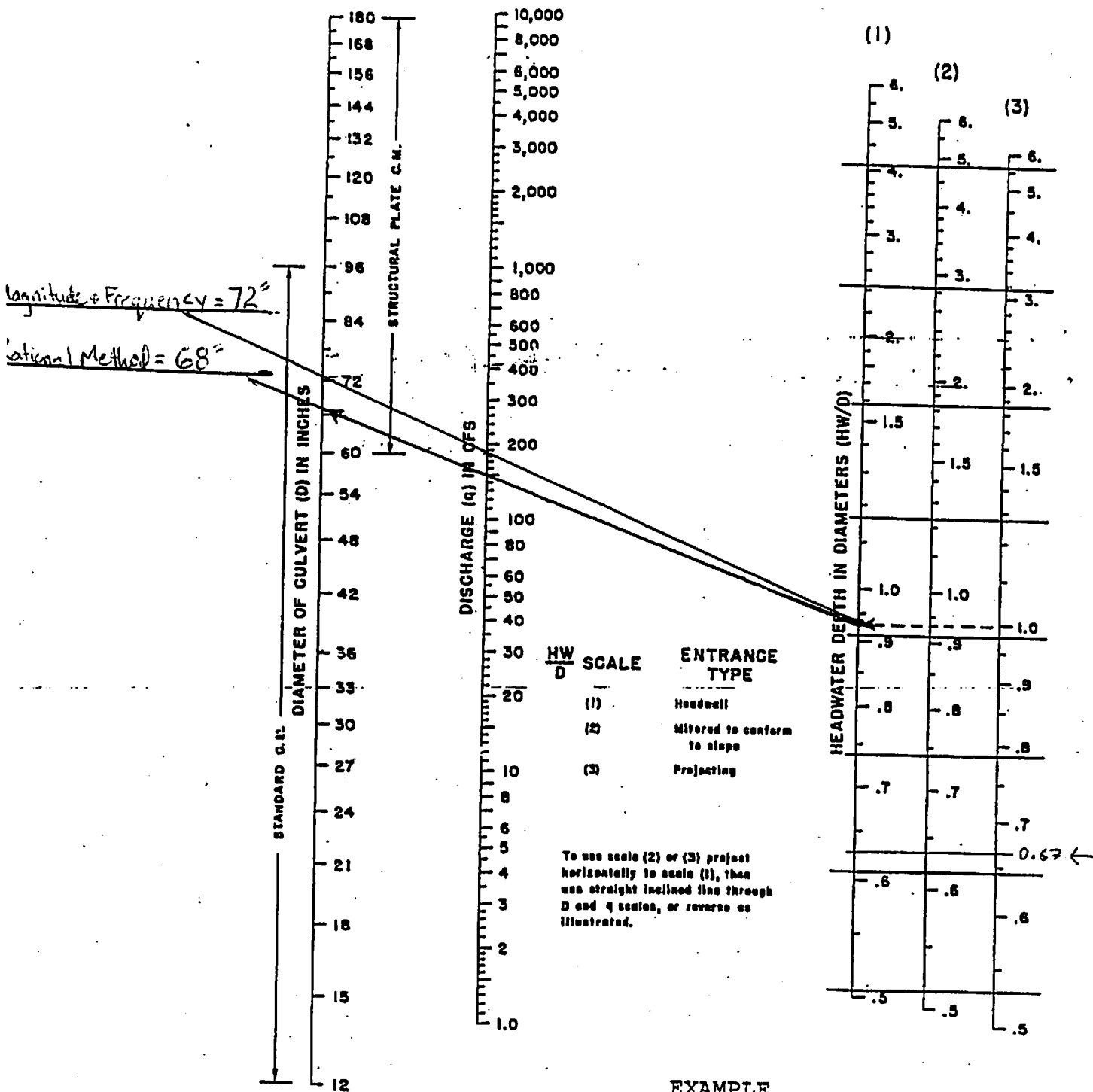
Michael Wopat

California Geological Survey

Redding, CA 96002

June 14, 2001

SQUIGGLY \approx P-2: Temp Class II



EXAMPLE

HW/D = 1.0

Entrance type = (3)

Discharge = 150 cfs

Result:

Diameter of culvert = 66 inches

FOR DEPARTMENT USE ONLY				
Date Received	Amount Received	Amount Due	Date Complete	Notification No
	\$	\$		



STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
NOTIFICATION OF LAKE OR STREAMBED ALTERATION



Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Sierra Pacific Industries			
Business/Agency	Business			
Street Address	PO Box 132			
City, State, Zip	Martell, CA 95654			
Telephone	(209) 223-7170	Fax	(209) 223-7175	
Email				

2. CONTACT PERSON (Complete only if different from applicant)

Name	Frank Mulhair			
Street Address	PO Box 132			
City, State, Zip	Martell, CA 95654			
Telephone	(209) 223-7170	Fax	(209) 223-7175	
Email	fmulhair@spi-ind.com			

3. PROPERTY OWNER (Complete only if different from applicant)

Name	Same as applicant			
Street Address				
City, State, Zip				
Telephone		Fax		
Email				

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Squiggly		
B. Agreement Term Requested		<input checked="" type="checkbox"/> Regular (5 years or less) <input type="checkbox"/> Long-term (greater than 5 years)		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (year)	Ending (year)	Start Date (month/day)	End Date (month/day)	
2008	2013	04/01	11/15	

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.

A.	<input type="checkbox"/> Standard (Most construction projects, excluding the categories listed below)
B.	<input type="checkbox"/> Gravel/Sand/Rock Extraction (Attachment A) Mine I.D. Number: _____
C.	<input checked="" type="checkbox"/> Timber Harvesting (Attachment B) THP Number: _____ unknown at this time
D.	<input type="checkbox"/> Water Diversion/Extraction/Impoundment (Attachment C) SWRCB Number: _____
E.	<input type="checkbox"/> Routine Maintenance (Attachment D)
F.	<input type="checkbox"/> DFG Fisheries Restoration Grant Program (FRGP) FRGP Contract Number: _____
G.	<input type="checkbox"/> Master
H.	<input type="checkbox"/> Master Timber Harvesting

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. *Note: The Department may not process this notification until the correct fee has been received.*

A. Project		B. Project Cost	C. Project Fee
1	Install a temporary 24 inch diameter culvert on a Class II watercourse	\$985.00	\$100.00
2			
3			
4			
5			
		D. Base Fee (if applicable)	\$1,200.00
		E. TOTAL FEE ENCLOSED	\$1,300.00

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?	
<input checked="" type="checkbox"/> Yes (Provide the information below)	<input type="checkbox"/> No
Applicant: <u>Sierra Pacific Industries</u> Notification Number: <u>unknown</u> Date: _____	
B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?	
<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.)	
<input type="checkbox"/> Continued on additional page(s)	

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

8. PROJECT LOCATION

A. Address or description of project location. <i>(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)</i>				
Please see attached map				
<input checked="" type="checkbox"/> Continued on additional page(s)				
B. River, stream, or lake affected by the project.		Unnamed tributary to Blue Creek		
C. What water body is the river, stream, or lake tributary to?		Blue Creek is tributary to Upper North Fork Mokelumne		
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		
E. County	Calaveras			
F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Garnet Hill	T7N	R15E	26	SE1/4 of the NW1/4
<input type="checkbox"/> Continued on additional page(s)				
K. Meridian (check one)	<input type="checkbox"/> Humboldt <input checked="" type="checkbox"/> Mt. Diablo <input type="checkbox"/> San Bernardino			
L. Assessor's Parcel Number(s)				
004-009-002-000				
<input type="checkbox"/> Continued on additional page(s)				
M. Coordinates (If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)				
Latitude/Longitude	Latitude: 38.43371		Longitude: 120.29269	
	<input type="checkbox"/> Degrees/Minutes/Seconds <input checked="" type="checkbox"/> Decimal Degrees <input type="checkbox"/> Decimal Minutes			
UTM	Easting:		Northing:	
	<input type="checkbox"/> Zone 10 <input type="checkbox"/> Zone 11			
Datum used for Latitude/Longitude or UTM		<input checked="" type="checkbox"/> NAD 27 <input type="checkbox"/> NAD 83 or WGS 84		

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

9. PROJECT CATEGORY AND WORK TYPE (Check each box that applies)

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization -bio engineering/recontouring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stabilization -rip rap/retaining wall/gabion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat dock/pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boat ramp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Channel clearing/vegetation management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Culvert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Debris basin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diversion structure – weir or pump intake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filling of wetland, river, stream, or lake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat enhancement –re vegetation/mitigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low water crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road/trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sediment removal -pond , stream, or marina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm drain outfall structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary stream crossing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utility crossing : horizontal Directional Drilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack/bore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open trench	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

This is a temp Class II crossing located within unit 162 along an existing haul road. This crossing has been used during previous entries and removed post operations.

A temporary 24-inch diameter culvert shall be installed. The road approaches, not including the channel, for a minimum of 25 feet either side of the centerline of the creek shall be rocked. The rock shall be installed prior to log haul. This temporary crossing shall be installed, utilized and removed outside of the winter period. The road shall be blocked to vehicle traffic when the crossing is removed.

☐ Continued on additional page(s)

B. Specify the equipment and machinery that will be used to complete the project.

Excavator or backhoe

☐ Continued on additional page(s)

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).

☒ Yes ☐ No (Skip to box 11)

D. Will the proposed project require work in the wetted portion of the channel?

☒ Yes (Enclose a plan to divert water around work site)
☐ No

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

Minor amounts of vegetation may be necessary for access and installation of drainage structures.

Minor disturbance to the bank and bed during culvert installation may affect insect and other aquatic resources. Fish are not present within this watercourse.

☐ Continued on additional page(s)

B. Will the project affect any vegetation?

☒ Yes (Complete the tables below) ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Grasses	Linear feet: 30 feet	Linear feet: _____
	Total area: 30 feet	Total area: _____
Herbaceous Plants	Linear feet: 30 feet	Linear feet: _____
	Total area: 30 feet	Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)

☐ Continued on additional page(s)

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☐ Yes (List each species and/or describe the habitat below) ☒ No ☐ Unknown

☐ Continued on additional page(s)

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

NDDDB, Company wildlife database, walk and look

☐ Continued on additional page(s)

E. Has a biological study been completed for the project site?

☐ Yes (Enclose the biological study) ☒ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (Enclose the hydrological study) ☒ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

12. MEASURES TO PROTECT FISH, WILDLIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Actual in channel operations with equipment will be confined to bucket and blade work while the tracked equipment will be located beyond flowing water. Equipment will operate within the stream course to move across the channel, if necessary.

Banks will be sloped to match upstream and downstream conditions

Temporary pipe, logs and associated fill shall be utilized for the temporary watercourse crossing.

Exposed soils shall be stabilized by seeding, mulching, or rock armoring

☐ Continued on additional page(s)

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Installation shall take place outside of the winter period during a rainless period where saturated soils do not exist. The "winter period" indicates the period between November 15 and April 1.

☐ Continued on additional page(s)

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

If water is present at the time of culvert installation and or removal, the water will be impounded and diverted around the site. Temporary water diversion structures (sand bags, pipes) shall be used to divert water during operations if necessary.

☐ Continued on additional page(s)

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

- A. Timber Harvest Plan ☒ Applied ☐ Issued
- B. _____ ☐ Applied ☐ Issued
- C. _____ ☐ Applied ☐ Issued
- D. known whether ☐ local, ☒ state, or ☐ federal permit is needed for the project. (Check each box that applies)

☐ Continued on additional page(s)

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

14. ENVIRONMENTAL REVIEW

A. ~~Has~~ a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

- ☒ Yes (Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each)
☐ No (Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared)

- | | | |
|---|---|--|
| <input type="checkbox"/> Notice of Exemption | <input type="checkbox"/> Mitigated Negative Declaration | <input type="checkbox"/> NEPA document (type): _____ |
| <input type="checkbox"/> Initial Study | <input type="checkbox"/> Environmental Impact Report | <input type="checkbox"/> CESA document (type): _____ |
| <input type="checkbox"/> Negative Declaration | <input type="checkbox"/> Notice of Determination (Enclose) | <input type="checkbox"/> ESA document (type): _____ |
| <input checked="" type="checkbox"/> TR/ NTMP | <input type="checkbox"/> Mitigation, Monitoring, Reporting Plan | |

B. State Clearinghouse Number (if applicable)

A number has not been assigned at this time

C. ~~Has~~ a CEQA lead agency been determined?

- ☒ Yes (Complete boxes D, E, and F) ☐ No (Skip to box 14.G)

D. CEQA Lead Agency

CAL-FIRE

E. Contact Person

William Solinski

F. Telephone Number

(559) 222-3714

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

This project is contained within the Squiggly Timber Harvets Plan (THP).

☐ Continued on additional page(s)

~~Has~~ an environmental filing fee (Fish and Game Code section 711.4) been paid?

- ☐ Yes (Enclose proof of payment) ☒ No (Briefly explain below the reason a filing fee has not been paid)

The fee is required and paid once the THP has been approved

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☒ I request the Department to first contact (insert name) Frank Mulhair
 at (insert telephone number) (209) 223-7170 to schedule a date and time
 to enter the property where the project described in this notification will take place. I understand that this may
 delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or
 the Department's issuance of a draft agreement pursuant to this notification.

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☐ Yes (Please enclose the information via digital media with the completed notification form)

☒ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

Signature of Applicant or Applicant's Authorized Representative

Date

Print Name

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

ATTACHMENT B

Additional Information for Projects Included in Timber Harvesting Plans

If the project described in the Notification of Lake or Streambed Alteration form (Form FG 2023) is part of a Timber Harvesting Plan (THP), the applicant must also submit the following information on one or more separate pages with the notification form.

I. PROJECT NAME AND THP NUMBER

II. PROJECT LOCATION

- A. *Encroachment Map.* A single map or diagram clearly delineating all of the following:
1. Lake and stream encroachments identified by number or other appropriate label
 2. Roads identified by a number or other appropriate label
 3. Watercourse classifications (i.e., Class I, II, or III)
 4. Access from a named public road
 5. North arrow and map scale

III. PROJECT DESCRIPTION

- A. *Multiple Encroachments.* If multiple lake or stream encroachments are proposed, include a table describes the following for each encroachment:
1. Encroachment type (e.g., permanent culvert, temporary bridge, rock revetment)
 2. Watercourse classification
 3. Structure (i.e., culvert, bridge, rock revetment) size
 4. Map reference number
- B. *Conditions at Encroachment(s).* Describe any torrent, debris, or landslide conditions at each encroachment.
- C. *Work Period(s).* If temporary crossings are proposed, specify dates and conditions requiring temporary crossing removal.
- D. *Culverts.* If a culvert crossing is proposed, provide calculations or other data used to size culverts.
- E. *Bridges.* If a bridge is proposed, include the following:
1. Indicate if the abutments or road approaches will encroach into the floodplain or stream channel
 2. Provide the calculations or data used to determine bridge height and flow capacity
 3. Describe the type of abutments and scour protections with dimensions
 4. Provide any engineering reports, plans, or other related documentation

NOTIFICATION OF LAKE OR STREAMBED ALTERATION
ATTACHMENT B

- F. *Water Diversion or Drafting.* If water will be present, and will be drafted or diverted around the work site, specify the following.
1. Volume, rate, and timing of water to be diverted or drafted
 2. Method of diversion or drafting
 3. Copy of applicable State Water Resources Control Board water right application, permit, or license

If any of the following conditions apply, contact the appropriate Department regional office to obtain a "Water Diversion Questionnaire" (Attachment C) and enclose a completed copy of the questionnaire with the notification:

1. Water will be used for purposes other than, or in addition to, road maintenance or dust control
2. Water drafting or diversion will continue after the THP expires
3. Water storage reservoirs, ponds, or other water storage facilities will be used after the THP expires as part of a subsequent land development or use phase

Sierra Pacific Industries

Planning Watersheds Wildlife Report

Print Date: 1/10/2008
 DFG CNDDDB Release Date: 10/2/2007
 SPI PWWild Release Date: 10/22/2007
 SPI PWWild Version: 1007

Martell District THP Report:

Page 1 of 4

1. Watershed Summary

1a. Watershed Area Summary

CPW ID	Name	Hydro. Unit	Total Acres	SPI%	Public%
6532.600505	* Lower Blue Creek	MIDDLE SIERRA	8285	55.91%	44.02%

* denotes watersheds for which detailed sighting reports are provided.
 SPI and Public fractions may be approximate due to recent ownership changes.

1b. Anadromous Fish/Erosion Summary

Anadromous Fish Concerns			Erosion Potential
CPW ID	*SPI Miles	Fish Presence	
6532.600505	0		

* Miles of stream on SPI land potentially available for anadromous fish.

1c. DFG NDDDB Rarefind Species and Sighting Summary

CPW ID	Animals							Plants						
	Mammals	Birds	Fish	Amphibians	Reptiles	Amphopods	Snails	Insects	Dicots	Monocots	Trees	Ferns	Moss	Lichens
6532.600505	1	1	1	1	1	1	1	1	1/1	1	1	1	1	1

Table entries are: No. of Species/No. of Sightings

1d. SPI Foresters and Staff Rarefind Species and Sighting Summary

CPW ID	Goshawks	CA Owls	Northern Owls	Other Vertebrates	All Plants
6532.600505	3/6	3/3	--	3/3	--

Goshawk table entries are: # Nest Sites / # Sightings

Owl Table entries are: # Activity Centers / # Sightings

All other table entries are: # Species / # Sightings

2. DGF NDDDB Rarefind Wildlife and Plant Sightings

2a. Animal Sightings

2b. Plant Sightings

Martell District THP Report:Page 2 of 4

Lomatium stebbinsi**Stebbins' lomatium**

Status: Federal	None	State	None
General Habitat	LOWER MONTANE CONIFEROUS FOREST, CHAPARRAL.		
Microhabitat	THIN, GRAVELLY VOLCANIC CLAY IN OPEN YELLOW PINE FOREST. GROWS WHERE OTHER VEGETATION IS ABSENT. 1235-1850M.		
CPW ID:	6532.600505	DFG Occ #:	4
		Date:	06/24/1982
		SPI Map#	PD3906
Main Info Source	No Longer Available		
Location	ALONG USFS ROAD 7N08, ON RIDGE BETWEEN BLUE CREEK AND THE MOKELUMNE RIVER.		
UTM	Zone 10 N 4258992 E 733662	Mer TRS 1/4:	M_07N15E21_NE
		Acres:	4.9
DFG More Info?	N	DFG Map Detail	N
		Lon/Lat (NAD27):	-120.32141 / 38.44873
		Elev:	4880
Threats	NO THREATS NOTED IN 1982.		
Ecological Comments	ON OPEN, GRAVELLY SITE WITH LARGE BOULDERS ALONG RIDGETOP SURROUNDED BY DENSE CONIFER DOMINATED FOREST. SHALLOW, SANDY CLAYS DERIVED FROM MUDFLOW BRECCIA VOLCANICS. ASSOCIATED WITH ERIOGONUM PRATTENIANUM AND LUPINUS COCCINEUS.		
Distribution Comments	MAPPED IN THE SE 1/4 OF THE NE 1/4 OF SECTION 21. USFS POPULATION #16-4 "BLUE CREEK" POPULATION.		
General Comments	1000-10,000 PLANTS OBSERVED IN 1982. SITE SEARCHED BY N. MCCARTEN AND J. LITTLE IN 1987, BUT NO PLANTS OBSERVED.		

Stebbins' lomatium

3. SPI Foresters and Staff Wildlife Sightings

3a. Goshawk Sightings

(Note: Map ID and Lon/Lat are provided for the primary reference location for a territory)

Territory	Blue Meadow	NestName	Blue Meadow	Map ID:	GO106701
CPW ID	6532.600505	Year	1996	ID#	106701
		Pair	Y	Young	Y
		Nest	Y		
TRS_40	07N15E20_NWSE	Lon/Lat (Nad27)	-120.344287 / 38.441981		
Notes	NEW nest; on USFS, just across property line from SPI -				
Status	Nesting with unknown number of fledglings				
Territory	Blue Meadow	NestName	Blue Meadow	Map ID:	GO106701
CPW ID	6532.600505	Year	2002	ID#	106701
		Pair	N	Young	N
		Nest	?		
TRS_40	07N15E20_NWSE				
Notes	-				
Status	Territory inactive; searched =>300m around last occupied nest, using broadcast calls (study protocol)				

Martell District THP Report:

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Territory	Middle Blue	NestName	Middle Blue	Map ID:	GO106715					
CPW ID	6532.600505	Year	1991	ID#	106715	Pair Y	Young	2	Nest	Y
TRS_40	07N16E30_SENW	Lon/Lat (Nad27)	-120.25577 / 38.43291							
Notes	Breeding -									
Status	Nesting with 2 fledglings									

Territory	Middle Blue	NestName	Middle Blue	Map ID:	GO106715					
CPW ID	6532.600505	Year	2002	ID#	106715	Pair N	Young	N	Nest	?
TRS_40	07N16E30_SENW									
Notes	-									
Status	Territory inactive; searched =>300m around last occupied nest, using broadcast calls (study protocol)									

Territory	Middle Blue	NestName	Middle Blue 2000	Map ID:	GO106716					
CPW ID	6532.600505	Year	2000	ID#	106716	Pair Y	Young	1	Nest	Y
TRS_40	07N16E30_NENW	Lon/Lat (Nad27)	-120.255411 / 38.434165							
Notes	Breeding -									
Status	Nesting with 1 fledgling									

Territory	Middle Blue	NestName	Middle Blue 2000	Map ID:	GO106716					
CPW ID	6532.600505	Year	2002	ID#	106716	Pair N	Young	N	Nest	Y
TRS_40	07N16E30_NENW									
Notes	-									
Status	Territory inactive; searched =>300m around last occupied nest, using broadcast calls (study protocol)									

3b. Northern Spotted Owl Sightings**3c. California Spotted Owl Sightings**

CPW ID	Territory	Year	DFG ID	BirdStatus	TRS_40	SPI Map ID
<i>(Note: Map ID's are shown for the latest primary activity centers only)</i>						
6532.600505	Blue Creek E	1992	CA011	pair	07N15E20_NWSW	OC1052143
6532.600505	Blue Creek I	1992	CA030	single	07N15E22_SNW	OC1052142
6532.600505	Blue Creek III	1990	CA014	pair	07N16E19_WSW	OC1052156

3d. Other Wildlife Sightings

CPW ID	Wildlife Species	Year	Qty/Activity Observed/Notes (Observer)	TRS_40	SPI Map#
6532.600505	California Spotted O	2002	1/spotted owl nest snag / Sighting occurred while conducting goshawk nest stand occupancy survey, including taped calls: no birds of either species was seen(Julie Kelley)	07N15E20_NESW	WS50406

Martell District THP Report:**Page 4 of 4**

6532.600505	Coopers Hawk	2001	1/nest / sighting turned in by M. Betterman of American Forestry, Inc. via FAX on 8/15/01(Mark Betterman)	07N15E24_NWSW	WS50363
6532.600505	Elk	2001	0/scat identified / sighting turned in by M. Betterman of American Forestry, Inc. via FAX on 8/15/01(Mark Betterman)	07N15E26_NENE	WS50362

4. SPI Foresters and Staff Rarefind Plant Sightings

Preliminary THP Plant List

THP Name: Squiggly

SPI Forester: Frank Mulhair

District: Martell

Date: 10/02/07

Brief 4400 to 5880 feet; Mostly North and South Aspects; Riparian zones, lava cap, and DG present;

Description: Silvicultures include CC, SWR & SEL.

Search Results: Habitat and Geographic Range Assessment

The following list contains federally-listed threatened, endangered, sensitive, or rare plants that are known to occur in the WAA/BAA (NDDDB) and species of special concern as identified by DFG reviewers and the SPI Research and Monitoring Department/Botany Program. On the basis of habitat requirements and known geographic ranges, indicate below which plant species can be excluded from field assessment and justify your choices.

Species	Habitat Description	NDDB Or SPI Group	Exclude from further consideration	Justification
<i>Allium tribracteatum</i>	Exclusively found on volcanic substrate, this species grows on lava caps, volcanic ridges, generally in barren sites (without woody plants) and sometimes on slopes flanking such sites, from 4000 to 10,000 ft. Distribution: limited to Calaveras and Tuolumne Cos. Identification period: Mar-Jun.	Target 1B.2	No	
<i>Calochortus clavatus</i> var <i>avius</i>	This species grows in openings in oak/pine forest, on canyon slopes, spurs, and ridges with southerly aspects, on rocky soils with surface rock/cobbles apparent (2800 to 5600'). It is known to grow in dense bear clover (<i>Chamaebatia foliolosa</i>). Canopy cover at known sites is usually under 50%; species presence is negatively correlated with high tree density. Distribution is limited to Amador, Calaveras and El Dorado Cos.	NDDB Target 1B.2	No	

Species	Habitat Description	NDDB Or SPI Group	Exclude from further consideration	Justification
<i>Chlorogalum grandiflorum</i>	This species exhibits a bimodal habitat selection. In the central Sierra Nevada this bulb grows on serpentine (Red Hills, Tuolumne County) or gabbro (El Dorado County) in chaparral, but is not restricted to these soils. In the northern Sierra Nevada it grows on metamorphic, volcanic, and rarely sedimentary substrata. Habitat includes foothill oak - gray pine woodlands, chaparral, and ponderosa pine - canyon live oak - whiteleaf manzanita associations. Elevations range from 800 to 3900 feet. Records are known from Tuolumne, Calaveras, Amador, El Dorado, and Placer Counties.	Target 1B.2	Yes	This THP area is out of the elevational range for this species. The lowest elevation found on this THP is approximately 4,400 feet, above the known elevation range for this species. Also, the areas where the elevation range is the lowest are found deep within the large drainages, not the ridge top and/or exposed habitat preferred by this species.
<i>Horkelia parryi</i>	Habitat preferred by this species are openings in chaparral and interior live oak (<i>Quercus wislizeni</i> , <i>Q. chrysolepis</i>), especially on lone formation; to 3500'. It is generally found on poorly vegetated, somewhat sterile or acidic rocky soils on ridges, as well as on road cuts. It is often found growing with knobcone pine, <i>Ceanothus tomentosus</i> , Mariposa manzanita, yerba santa, and annual grasses. Its distribution is limited to the northern and central Sierra Nevada foothills (Amador, Calaveras, El Dorado, and Mariposa Cos.), especially the lone Formation.	Target 1B.2	Yes	The THP area is out of the elevational range for this species. The lowest elevation found on this THP is approximately 4,400 feet, above the known elevation range for this species. Also, the areas where the elevation range is the lowest are found deep within the large drainages, not the ridge top and/or exposed habitat preferred by this species.
<i>Lomatium stebbinsii</i>	Occurrences limited to non-forested andesite or mud-flow breccia ridges and upper slopes ("lava cap" sites). Plants of this spring flowering bulb complete flowering and seed is dispersed within about 60 days following snowmelt, often before June 15th. This species grows in thin, gravelly volcanic clay soil (soil depth less than 10 inches), on lava caps, volcanic ridges and slopes, sometimes mixed in with low grasses (4000-6000'), but generally in sites of barren woody vegetation; it is usually associated with <i>Allium tribracteatum</i> . Distribution is limited to Amador, Calaveras, and Tuolumne Cos.	NDDB Target 1B.1	No	

Species	Habitat Description	NDDB Or SPI Group	Exclude from further consideration	Justification
<i>Mimulus pulchellus</i>	This species prefers the drying edges of vernal wet depressions (meadows, seeps) that are well saturated in spring, on disturbed volcanic and granitic soil in yellow pine forests (2000 to 6600 ft). Distribution is limited to Calaveras, Mariposa, and Tuolumne Cos.	Target 1B.2	No	
<i>Piperia colemanii</i>	Reported sites show this orchid to grow in the duff in the understory of shaded conifer forests of <i>Pinus ponderosa</i> , <i>P. lambertiana</i> , <i>Abies concolor</i> and <i>Calocedrus decurrens</i> – essentially mixed-conifer forest. Its geographic range extends the length of the central and northern Sierra Nevada, and into the Cascades. It can potentially be found at elevations of 3,500 ft to 8,000 ft in the Cascades, and at 4,500 ft to perhaps 8,500 ft in the Sierra.	Target 4.3	No	
<i>Pseudostellaria sierrae</i>	Forms colonies that are acres in size in duff or mineral soil; canopy gap openings in dense forest or throughout the understory of moderately dense mixed-conifer forest (<i>Pseudotsuga menziesii</i> , <i>Abies concolor</i> , <i>Calocedrus decurrens</i> , <i>Pinus ponderosa</i> at one site, total canopy ca. 40%); colonies located in sites with moderate (ca. 10%) cover of native perennial herbs, with little shrub cover (<i>Rosa gymnocarpa</i> , <i>Rubus parviflorus</i> at one site); matted form recently found in clear cut plantation at the sugar pine/red fir transition zone on Tahoe Dist.; ranging from the Tuolumne-Merced river divide at 7000 ft in the south, to as low as 4300 ft in Plumas County; known from Plumas, Placer, Nevada, Tuolumne Cos. Mean elevation of known sites is 5300 ft.	Target 3.2	Yes	Habitat for this plant does not exist within the THP area. Considering the southern proximity of this THP, it is well below the elevational range (approximately 7000 feet) of this species. Also the plant communities and on-site conditions associated with higher altitude form of Sierra Mixed Conifer in which this plant is found, is not present on the THP. This species has been found in stands that are dominated by true fir species while the THP area is composed of Sierra Mixed Conifer.
<i>Ceanothus fresnensis</i>	Dry rocky ridges of volcanic, metamorphic or other non-granitic rocks, often with Jeffrey Pine and without dense conifer forest, at 2700-6600 ft on the western slope of the Sierra Nevada.	Watch 4.3	No	

Species	Habitat Description	NDDB Or SPI Group	Exclude from further consideration	Justification
<i>Clarkia virgata</i>	Grows in natural openings and disturbed sites. Typically found in mixed-conifer forest with a black oak component. An outcrosser, the anthers mature earlier than the stigma. Often found with common <i>C. rhomboidea</i> , but flowers 2-3 weeks later. Elevation range: 1300-4900 ft. Twain Harte north to Hwy 50.	Watch 4.3	No	
<i>Cypripedium fasciculatum</i>	Mixed conifer or oak forests, usually in cool, shady stands; may be on general forest soils or occasionally on ultramafic soils; often on steep slopes. Often but not always along streams. Occasionally on roadcuts.	Watch 4.2	No	
<i>Cypripedium montanum</i>	Diverse habitats: Typically in moist areas near azaleas or dogwoods; also on dry slopes under oaks, firs and madrones; sometimes in marshy areas under alders, firs and cedars with corn lilies.	Watch 4.2	No	
<i>Lilium humboldtii ssp humboldtii</i>	Yellow pine forest, cismontane woodland, lower montane coniferous forest/openings	Watch 4.2	No	
<i>Mimulus inconspicuus</i>	Near hillside streams or seeps in partial shade; a foothill plant where the pine belt begins; El Dorado to Tuolumne Cos. 600 - 2500 ft.	Watch 4.3	Yes	The THP area is out of the elevational range for this species. The lowest elevation found within this THP is approximately 4,400', well above the known elevational range for this species.
<i>Mimulus laciniatus</i>	Seeps on massive, unvegetated granitic outcrops, often growing in wet moss or about the spray of cascades of snowmelt streams; Butte, Tuolumne to Tulare Cos.; 1500-8700 ft.	Watch 4.3	No	
<i>Monardella candicans</i>	Sandy or gravelly soil in chaparral, foothill woodland, or yellow pine forest; Placer to Kern Cos.; 0-2500 ft.	Watch 4.3	Yes	The THP area is out of the elevational range for this species. The lowest elevation found within this THP is approximately 4,400 feet, well above the known elevational range for this species. Additionally the foothill forest/plant communities associated with this species are not present.

Species	Habitat Description	NDDB Or SPI Group	Exclude from further consideration	Justification
<i>Perideridia bacigalupi</i>	Generally limited to clay-rich soils on ridges in chaparral or woodland, or serpentine sites, 1500 to 3000 ft on the western slope of the Sierra Nevada, flowering in mid-summer. Amador, Butte, Calaveras, Madera(?), Mariposa, Nevada, Tuolumne, Yuba Cos.	Watch 4.2	Yes	The THP area is out of the elevational range for this species. The lowest elevation found within this THP is approximately 4,400 feet, well above the known elevational range for this species. Additionally the area soils are primarily sandy loams with moderately little to little clay.
<i>Sphenopholis obtusata</i>	Wet meadows, stream banks, ponds.	Watch 2.2	No	
<i>Stellaria longifolia</i>	Habitat: mountain bogs in the Sierra Nevada and Cascade Range; 2800 to 5000 ft. Documented from three sites in Calif: Goose Valley (Shasta Co) where it last seen in 1900, near Jonesville (Butte Co) where it was documented in 1978, and Love Ck (Calaveras Co) seen in 1940. It is widely distributed in the Rocky Mountains. It is very similar to <i>S. longipes</i> , a common meadow plant in the Sierra Nevada.	Watch 2.2	Yes	Bog like conditions do not exist within this THP.
<i>Bolandra californica</i>	Shady crevices on cliffs or in mossy herb-rich sites in the vicinity of waterfalls. Elevation: 4000-8000 ft. Identification period: June-July	CNPS:4.3	Yes	Suitable cliff or waterfall habitat is not present on the THP area.
<i>Cryptantha crymophilla</i>	Subalpine low sagebrush steppes; known from Alpine, Mono, and Tuolumne Counties. Elevation: 8500-10500 ft. Identification period: July - August.	CNPS: 1B.3	Yes	The THP area is well removed and at much lower elevations than the nearest occurrences for this species on the Sierra crest at Bear Valley, east of the THP
<i>Jensia yosemitana</i>	Non-forested openings, with little woody vegetation present and sparse annual vegetation. Known from about 30 occurrences in the Sierra from Yuba to Kern Counties. Elevation: 2000-7000 ft. Identification period: May - July.	Watch CNPS: 3.2	No	

DFG Release Date: 10/2/2007
SPI Release Date: 10/22/2007
PWWild Version: 1007

Preliminary THP Survey and Plant Protection Recommendations

THP Name: Squiggly

SPI Forester: Frank Mulhair

District: Martell

Date: 10/02/07

Pre-Field Scoping Assessment: Potentially Impacted Plant Species

As a result of pre-field habitat screening, the following plant species have been identified as having potential habitat and presence within the THP area. Survey recommendations and proposed plant protection measures are summarized below.

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Allium tribracteatum</i>	Target 1B.2	Surveys for this plant species will be conducted during the appropriate floristic window.	An Equipment Limitation Zone (ELZ) shall be established around the perimeter of the occurrence. Within the ELZ equipment shall be limited to existing roads and/or RPF designated skid trails. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the ELZ shall be directionally felled and yarded away from the ELZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the ELZ to extend beyond the perimeter of the occurrence. Alternatively, a zone shall be established around the perimeter of the occurrence in which harvesting shall be limited to occur before plant sprouting, after seed set, or after plant senescence for the year. Protection measures shall not be required if the plants exist solely within a road or landing proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Calochortus clavatus var avicus</i>	NDDB Target 1B.2	Surveys for this plant species will be conducted during the appropriate floristic window.	An Equipment Limitation Zone (ELZ) shall be established around the perimeter of the occurrence. Within the ELZ equipment shall be limited to existing roads and/or RPF designated skid trails. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the ELZ shall be directionally felled and yarded away from the ELZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the ELZ to extend beyond the perimeter of the occurrence. Alternatively, a zone shall be established around the perimeter of the occurrence in which harvesting shall be limited to occur before plant sprouting, after seed set, or after plant senescence for the year. Protection measures shall not be required if the plants exist solely within a road or landing proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.
<i>Lomatium stebbinsii</i>	NDDB Target 1B.1	Surveys for this plant species will be conducted during the appropriate floristic window.	An Equipment Exclusion Zone (EEZ) shall be established around the perimeter of the occurrence. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the EEZ shall be directionally felled and yarded away from the EEZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the EEZ to extend beyond the perimeter of the occurrence. Protection measures shall not be required if the plants exist solely within roads or landings proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Mimulus pulchellus</i>	Target 1B.2	Surveys for this plant species will be conducted during the appropriate floristic window.	An Equipment Limitation Zone (ELZ) shall be established around the perimeter of the occurrence. Within the ELZ equipment shall be limited to existing roads and/or RPF designated skid trails. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the ELZ shall be directionally felled and yarded away from the ELZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the ELZ to extend beyond the perimeter of the occurrence. Alternatively, a zone shall be established around the perimeter of the occurrence in which harvesting shall be limited to occur before plant sprouting, after seed set, or after plant senescence for the year. Protection measures shall not be required if the plants exist solely within roads or landings proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Piperia colemanii</i>	Target 4.3	Surveys for this plant species will be conducted during the appropriate floristic window.	An Equipment Limitation Zone (ELZ) shall be established around the perimeter of the occurrence. Within the ELZ equipment shall be limited to existing roads and/or RPF designated skid trails. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the ELZ shall be directionally felled and yarded away from the ELZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the ELZ to extend beyond the perimeter of the occurrence. Alternatively, a zone shall be established around the perimeter of the occurrence in which harvesting shall be limited to occur before plant sprouting, after seed set, or after plant senescence for the year. Protection measures shall not be required if the plants exist solely within roads or landings proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.
<i>Ceanothus fresnensis</i>	Watch 4.3	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	The number of plants and occurrences does not justify survey or additional protection measures.

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Clarkia virgata</i>	Watch 4.3	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	An Equipment Limitation Zone (ELZ) shall be established around the perimeter of the occurrence. Within the ELZ equipment shall be limited to existing roads and/or RPF designated skid trails. Trees shall be directionally felled and yarded away from plants. Trees harvested outside the ELZ shall be directionally felled and yarded away from the ELZ boundary. If there are low numbers of individuals within an occurrence or operations may adversely affect substantial numbers of individual plants, the forester shall use discretion in establishing the ELZ to extend beyond the perimeter of the occurrence. Alternatively, a zone shall be established around the perimeter of the occurrence in which harvesting shall be limited to occur before plant sprouting, after seed set, or after plant senescence for the year. Protection measures shall not be required if the plants exist solely within a road or landing proposed for use. In this case, the RPF will survey adjacent areas in an attempt to locate additional plants.
<i>Cypripedium fasciculatum</i>	Watch 4.2	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	Operations will be conducted to leave a portion of any occurrence in an undisturbed state by flagging an Equipment Limitation Zone (ELZ).
<i>Cypripedium montanum</i>	Watch 4.2	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	Operations will be conducted to leave a portion of any occurrence in an undisturbed state by flagging an Equipment Limitation Zone (ELZ).
<i>Lilium humboldtii</i> ssp <i>humboldtii</i>	Watch 4.2	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	Operations will be conducted to leave a portion of any occurrence in an undisturbed state by flagging an Equipment Limitation Zone (ELZ).

Species	NDDB Or SPI Group	Survey Recommendations	Plant Protection Summary
<i>Mimulus laciniatus</i>	Watch 4.3	This species does not qualify for CEQA protection since it is neither threatened nor endangered. Occurrences will not be targeted for survey, but will be inventoried if encountered as part of other botanical survey activities.	Operations will be conducted to leave a portion of any occurrence in an undisturbed state by flagging an Equipment Limitation Zone (ELZ).
<i>Sphenopholis obtusata</i>	Watch 2.2	This SPI Watch List species will be documented if observed in conjunction with a Survey species.	Operations will be conducted to leave a portion of any occurrence in an undisturbed state by flagging an Equipment Limitation Zone (ELZ).
<i>Jensia yosemitana</i>	Watch CNPS: 3.2		

The following is SPI's response to questions raised regarding adjacency of units in this THP next to previously-logged units:

To clarify, SPI has clearly stated that its Option A is a non-spatial plan, see direct quotes from our Option A documents italicized and underlined below.

This is not a linear programming effort; therefore there is no objective function or model formulation as would be the norm in that environment. We did construct an expert based simulation model of growth, harvest, and a multitude of other real world interactions, pertaining to FPRs as well as the best available growth estimation process we are aware of. This proprietary model is called the Graphical Planning Interface GPI).

We incorporate, through our referencing process, specific relational quantitative knowledge that served to guide and make more realistic our non-spatial Option A demonstrations of our achievement of MSP.

.....

Harvest scheduling within the Option A plans is a relatively direct process. We allocate "referenced" percents of the landbase to each regeneration method based upon insights gained from the most similar completed THP planning effort. This is why we call this a "referenced" process. The detailed planning effort percent results are distributed across site classes, within the sub-unit area of these plans. The operational impacts of adjacency constraints and unit size limitations learned as a result of our THP efforts prevents targeting any specific site class or biasing the harvest away from the average site distribution within each area. All non-operational and non-forest areas are carefully delineated at this level. This base line level of site specific THP planning that underpins this non-spatial model is ongoing but as yet incomplete for the entire ownership.

At the time of submission of these Option A demonstrations of achievement of MSP, we had completed over 400,000 acres distributed throughout the geographic and site capability range of SPI's landbase. We have now completed nearly 1,000,000 acres and find that the referenced values were accurate estimators. This level of feasibility testing for specific THP planning is too detailed to provide the direct basis of Option A level projections. But it serves as confirmation that acres by silvicultural prescriptions, thresholds constraints, etc, are accurately modeled by this referenced process in the non-spatial Option A. This confirmation and confidence comes from the real world modeling and application of all of the following constraints:

the Forest Practice Rules,
non-declining flow constraints,
self-imposed 10-year adjacency constraints,
internal wildlife habitat goal considerations,
limitations on regeneration harvests due to local visual and political considerations,
watershed considerations,
actual area-specific listed wildlife species protection harvest limitations,
actual WLPZ widths,
coincident timing of WLPZ and adjacent silvicultural systems,
harvest unit-size constraints,
stand specific basal area retention requirements.

Since the Option A was a referencing process, it does not directly impose any adjacency constraint. As can be seen from these quotes, SPI has considered all of the listed constraints (first the application of the Forest Practice Rules and then a self-imposed 10-year adjacency constraint), but these constraints were demonstrated and applied in a forward looking manner to SPI's future planning. SPI clearly disclosed that the actual detail planning was not completed at the time of submission of the Option A, thus the need for the referencing process.

In all its planning efforts, the past "unplanned harvesting" was carefully considered, but in our effort to move towards higher productivity, we did not apply our 10 year adjacency planning to past harvest units. Instead, we used the FPRs as our guide. This is consistent with all modeling for the Option A demonstration. As the Option A also states, other real world issues may affect these modeling assumptions, as we have had 9 THPs spend 3 to 7 years in litigation. We have in some cases had to harvest plans that would not have started until year 5 of our planning effort and will eventually replace them with the litigated THPs. These switches may cause the type of adjacency issue raised in this THP, but will not effect Option A productivity or sustainability issues. On an overall company wide basis, the 10 year planning adjacency and 10 year discussion on herbicides are responsible expectations discussions. As such, minor deviations are possible without affecting the results and conclusions of the Option A document.

However, it is important to add that within the paragraph quoted from the Option A, the additional sentence is also included: "As a practical issue, many of the ongoing small changes in THPs to mitigate impacts are inherently in our modeling, since we used the referencing to approve plans to develop our long-term sustained yield trajectory." To expand on this, the 10 year adjacency limitation was a planning objective (meaning it is our intention to start activities in decade one and then have new activities in decade 2. It was never a 10 year from completion to new harvest as the law requires for the 5 year adjacency. So sometimes operations may take 3 years and the next decade plan may start in less than 10 years from completion), and as long as the THP otherwise meets the Forest Practice Rules, minor differences from the 10 year planning goal will not violate our LTSY (long term sustained yield) calculations. Those minor differences might be the result of natural events, political or litigational delays, harvest scheduling, or THP preparation and submission timing to ensure uniform harvest flows. Since the LTSY modeling was not spatial, specific unit constraints are not absolute, but rather that the total number of acres regenerated, pre-commercially thinned and selectively harvested fall within prescribed bounds for the area within the Option A. Over the Sierra Pacific lands in total, our future harvesting will approach these planning goals, but it is not a requirement of sustained yield prediction that on each THP these planning goals are met exactly.

SECTION VI

CONFIDENTIAL DOCUMENTS – SQUIGGLY THP

Archaeological Addendum

RECEIVED

MAR 11 2000

SOUTHERN REGION HEATHCOTE
RESOURCE MANAGEMENT

ATTENTION

- I. THE FOLLOWING ADDENDUM(S), AND INFORMATION IS REQUIRED BY LAW TO BE KEPT CONFIDENTIAL AND IS NOT FOR PUBLIC VIEWING:

ARCHEOLOGY:

(GOV. CODE 6254.10) & 14 CCR 969.1(a) (2))

PAGE 153 THROUGH PAGE 214

OPTION "A" TRADE SECRETS:

(GOV. CODE 6254.7(a))

PAGE _____ THROUGH PAGE _____

NTMP – TRADE SECRETS:

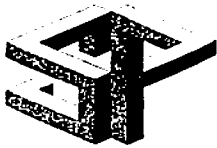
(GOV. CODE 6254.7(a))

PAGE _____ THROUGH PAGE _____

- II. THE FOLLOWING NON-CONFIDENTIAL PAGES HAVE BEEN REMOVED FROM THIS THP/NTMP. THESE PAGES ARE AVAILABLE UPON REQUEST FROM THE DEPARTMENT OF FORESTRY & FIRE PROTECTION, 1234 Shaw Ave., Fresno, CA 93710, OR CALL 559-243-4100.

OTHER(S) _____

PAGE _____ THROUGH PAGE _____



Sierra Pacific Industries

Martell District • P.O. Box 132 • Martell, California 95654-0132 • (209) 223-7170

May 26, 2008

Mike Bacca
Cal-Fire
Forest Practice Manager
1234 East Shaw Avenue
Fresno, California 93710-7899

RECEIVED
MAY 27 2008
SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

Reviewed by:	WPS
Dist. by:	CB
Dist. Date:	4/10/08
RU	ICU
TO	PS
WO	SA
ARCH	TLO
RPF	LTO
INSP	DMG
OTHER:	BOE
FPS	
Status:	POP

Dear Mike,

Please add the following contractor to the following THP's:

Joe Thornton Logging
PO Box 7
Wilton, CA 95693
LTO# A-8658

THP# 4-07-41/Eld-20 On It Creek
4-07-24/Cal-3 Mitchell Mill
4-00-91/Cal-15 Hazel
4-06-42/Cal-7 South Rim
4-08-05/Cal-1 Squiggley ✓
4-06-46/Cal-8 Spur 11

In addition, I have enclosed a LTO Responsibility Acknowledgement form for the above THP. Joe Thornton Logging is responsible for tractor piling site preparation activities on the THP's listed above.

Sincerely,

Craig Ostergaard
Martell Forester RPF# 2427

LICENSED TIMBER OPERATOR RESPONSIBILITY ACKNOWLEDGEMENT
(As per Section 1035.3 Title 14, CCR)

Harvesting Plan Number: # (4-07-41/Eld-20 On It Creek) (4-07-24/Cal-3 Mitchell Mill) (4-00-91/Cal-15 Hazel)
(4-06-42/Cal-7 South Rim) (4-08-05/Cal-1 Squiggley) (4-06-46/Cal-8 Spur 11)

Licensed Timber Operator Information

Name: Joe Thornton Logging

Street Address/PO Box: PO Box 7 City: Wilton CA Zip Code: 95693

Telephone Number: (916) 687-6907 LTO Number: A-8658

As the LTO listed above I acknowledge responsibility for the following:

- 1) Inform the responsible RPF or plan submitter orally or in writing of any site conditions which in The LTO's opinion prevent implementation of the approved plan and amendments.
- 2) Be responsible for the work of his or her employees and familiarize all employees with the intent and details of the operational and protection measures of the plan and amendments that apply to their work.
- 3) Keep a copy of the applicable approved plan and amendments available for reference at the site of active timber operations.
- 4) Comply with all provisions of the Act, Board rules and regulations and the applicable approved plan, and amendments.
- 5) Attend an on-site meeting or discuss archaeological site protection with the RPF or supervised designee familiar with on-site conditions.
- 6) To inquire of the plan submitter, timberland owner or their authorized agent, RPF who wrote the plan, or the supervised designee, if any mitigation measures or specific operating instructions are contained in the Confidential Archaeological Addendum or any other confidential addendum to the plan.
- 7) Provide the RPF responsible for professional advice throughout the timber operations, the name, address and phone number of an on-site contact employee authorized by the LTO to receive RPF advice.
- 8) Keep the RPF responsible for professional advice throughout the timber operations advised of the status of timber operation activity.
- 9) Within 5 days before, and not later than the startup of timber operations, notify the RPF of the start of timber operations.
- 10) Within 5 days before, and not later than the shutdown of a timber operation, the LTO shall notify the RPF of the shutdown of timber operations.
- 11) Cease operations, except for emergencies and operations needed to protect water quality, upon receipt of written notice of an RPF's withdrawal of professional services from the plan. The LTO shall not resume operations until written notice is received from the plan submitter that another RPF has visited the site and accepts responsibility for providing advice regarding the plan as the RPF of record.

In addition to the above, I have specific responsibilities for the following: _____

I have read and understand my responsibilities as the Licensed Timber Operator summarized above and specifically described in 14 CCR 1035.3. I will fulfill my legal obligation as stated in the forest practice rules, and agree to fulfill my responsibilities as described above.

LTO Signature: [Signature] Title: OWNER

Responsible On-Site Contact (if different)

Name: RAYMOND C. STEPHEY

Printed Name: Raymond C. Stephy Date: 2 JUN 2008

Street Address/PO Box #: PO Box 1357 City: POLOCK PINES Zip: 95726-1357

Telephone Number: 530-320-6515

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

Phone (209) 223-7170

Fax (209) 223-7175

CAL-FIRE
1234 East Shaw Avenue
Fresno, California 93710-7899

May 20, 2008

Ref: THP # 4-08-005 CAL (SQUIGGLY THP)

RECEIVED
MAY 27 2008
SOUTHERN CALIFORNIA FORESTERS
RESOURCE MANAGEMENT

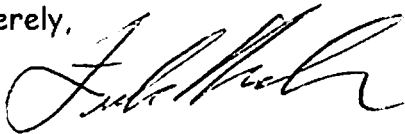
Reviewed by: <u>1247</u>	
Dist. by: <u>1247</u>	
Dist. Date: <u>5/27/08</u>	
<u>RU 124</u>	PS
<u>FG 2</u>	TO
<u>WQ 124</u>	TLO
ARCH	LTO
RPF	DMG
INSP	BOE
OTHER:	
FPS	
Status: <u>1247</u>	

Dear Mr. Solinsky
Review team Chair

The following pages are in response to the PHI Team Questions for the above referenced THP. Please substitute the original THP pages with the enclosed "Revised" pages and please add the additional pages attached to this letter. I am submitting to you the listed information in the following order.

1. Copy of the all review team questions and recommendations with the RPF responses included. Please note that contrary to the previous correspondence from CAL-FIRE, the answers to the 1st review team questions were submitted at the PHI.
2. Replacement pages and additional pages. Please note that not all of the pages being submitted include a change. Many of the pages needed to be resubmitted to accommodate changes in page justification. Double underlining and arrows of sentences, words, or the title of a section being discussed identify the changes.
3. A copy of a CDF "Official Response" relative to oak retention

Sincerely,



Frank Mulhair
Forester, RPF #2625

To: Mike Noonan, Unit Chief THP NO. 4-08-05/CAL-1 Squiggly THP
From: Candace Gregory, Southern Region Chief

*****SECTION I*****

Review Team Recommendations:

PHI X - Complete entire PHI form, Sections I-IV.
PHI Optional - Email Review Team Fresno ASAP if PHI is scheduled
Focused PHI - Complete Sections I, III, and IV

NOTE: All responses to the preharvest inspection and the preharvest inspection report are due at Southern Region Office no later than the Friday before the second review. Please e-mail completed form to FresnoReviewTeam@fire.ca.gov. If this cannot be accomplished, it is the inspector's responsibility to contact the RPF and secure an extension and notify the Southern Region Office of the extension.

FIRST REVIEW DATE: March 18, 2008 FILING DATE: March 21, 2008

PHI MUST BE CONDUCTED BETWEEN FILING DATE AND March 31, 2008

DATE(s) PHI CONDUCTED: April, 28 & 29, 2008 INSPECTION NO: 1

PHI/DIRECTORS DETERMINATION DATE EXTENDED BY MUTUAL CONSENT: X YES

REVIEW BASED UPON PREVIOUS VISIT: DATE NO

RPF: Frank Mulhair (209) 223-7170 FIELD HOURS: OFFICE HOURS:

DFG REGION: 2 WQ REGION: 5A INSPECTOR: Tinsley

AGENCIES REQUESTING TO ATTEND PHI:

Regional Water Quality Control Board: Department of Fish and Game Region: 1

Central Valley (Region 5)Rancho Cordova (Region 2)

 (916) 464-4630 Marty Hartzell
 X (916) 464-4820 Chris Cochrane
 (559) 445-6278 Anthony Toto

 (916) 358-2892 Tina Bartlett
 (916) 358-2900 Tim Nosal
 X (916) 358-2916 Sandra Jacks

Lahontan (Region 6)Fresno (Region 4)

 (530) 542-5426 George Cella
 (530) 542-5417 Doug Cushman

 (209) 588-1879 Dan Applebee
 (559) 243-4014x238 Lisa Gymer
 (559) 243-4014x236 Margarita Gordus

REVIEW TEAM:

 X Review Team Chair (559) 243-4153 Bill Solinsky
 X Forest Practice Manager (559) 243-4114 Mike Bacca
 X Archaeologist (559) 243-4119 Linda Pollack
 Archaeologist (916) 261-1108 Gerrit Fenenga
 X Archaeologist (916) Tony Overly
 X Geologist (916) 322-4853 Bill Short
 Geologist (916) 327-2903 John Schlosser

OTHER AGENCIES: Mark Stewart EBMUD Phone: (530) 621-4100

property in Section 22. Burn piles adjacent to emergency access roads would be an unacceptable hazard if left untreated during the fire season. Please revise proposed slash treatment as necessary to reduce risk to the public.

RESPONSE TO QUESTION #4

The possibility of untreated burn piles adjacent to emergency access roads during the fire season already exists within the prescriptive rules. The BMP being proposed shall provide for better overall reduced fire risk to the public.

The standard rule for burning of piles for hazard reduction requires that they be burned prior to April 1st following their creation. In order to achieve acceptable air quality requirements, sufficient time must be allowed for material drying before ignition. Additionally sufficient time must be allowed for material drying to achieve a more efficient oxidation of organic material at a high temperature, thus resulting in a greater consumption of organic material. Material generated during the later portion of the operating season needs more time than that afforded by the standard rule. Alternatively, the two "FALL Seasons" window will better allow sufficient time for drying and safe ignition, thus balancing air and fuel hazard resource needs.

Additionally, the section titled **Item #30 & 31- Explanation and Justification of BMP Range of Acceptable Results**, page 47 within Section III, shall revise the subtitle to better reflect the discussion within Section II

5. Item #32(a) indicates "No" in reference to habitat associated with the THP of sensitive species by the Board. Under #32(b) on page 18 indicates that goshawk sightings are located adjacent to clear-cut units and the areas contain potentially suitable nesting habitat. The Northern goshawk is a sensitive species as per 14 CCR 895.1, and since goshawk habitat is associated with the plan it should be addressed under Item #32(a).

RESPONSE TO QUESTION #5

Item #32(a) shall be change to indicate "Yes"

6. The discussion of non-listed raptors on page 19 states that the Plan Submitter can choose not to cut trees without an amendment to the THP. The retention of trees for this purpose would be a change to the plan and an amendment would be required. Please revise accordingly.

RESPONSE TO QUESTION #6

The retention of trees within areas designated for harvest does not require an amendment to the THP.

7. Please indicate under Item #32(b) that the results of any botanical surveys conducted within the plan area will be submitted to CAL FIRE regardless of target species presence or absence.

RESPONSE TO QUESTION #7

Item # 32 (b) will add:

Botanical survey results shall be submitted to CAL FIRE regardless of target species presence or absence.

REVIEW TEAM QUESTIONS

RPF - Please provide the following information prior to the PHI (if a PHI is required) and have the information available in writing for the CDF inspector prior to the PHI. Please also send a copy of your response to these questions to the review team in Fresno. First review responses, with a cover page including the THP/NTMP number, date, an errata sheet for replacement pages to the plan, and the RPF of Record's Signature and RPF number, can be submitted by e-mail to FresnoReviewInbox@fire.ca.gov (The maximum size of the e-mail cannot exceed 2 MB). Failure to send a copy of these responses to the Fresno office may result in delays of THP approval.

1. Item #18 on page 18 indicates that straw mulch will be applied to a minimum coverage of 75%, although as a mitigation to watershed cumulative impacts the plan states on page 77 that skid trails will have a minimum coverage of 80%. Please revise for consistency

RESPONSE TO QUESTION #1

Page 77 shall be revised for consistency

2. Item #24 indicates that roads and watercourse crossing will not be abandoned, and that the landing at project "P1" will be abandoned. Page 12 states that there are 14 segments of roads that are listed as temporary. As per 14 CCR 895.1 temporary roads will be used only during timber operations. As per 14 CCR 963.4(b) upon completion of timber operations temporary roads shall be abandoned. Please revise accordingly, and provide a Road Abandonment Plan as per 14 CCR 963.8 under Item #25 if necessary.

RESPONSE TO QUESTION #2

Page 11; Item #24 shall be revised to include

f. ☒ Yes ☐ No Will any roads or watercourse crossings be abandoned?

Page 12; Item #25 shall be revised to include the statement:

"Temporary roads shall be abandoned to the standard as per 14 CCR 963.8"

3. Item #31 references 14 CCR 957.2 in regards to areas requiring slash treatment and states that within 50 feet of the edge of the traveled surface of the permanent private road open for public use. In the Southern Forest District "seasonal" roads are also included as requiring treatment. Please include seasonal roads for treatment and also in regards to "Objectives."

RESPONSE TO QUESTION #3

Item #31 shall be revised to include "and seasonal"

4. Item #31 states on page 17 that burn piles will be greater than 90% consumed within 18 to 24 months from creation. Please consider if any roads provide emergency access to the public who own

8. Since operations may be conducted during the winter period, please include under Item #38 that hauling shall not occur between October 15 and May 1 when saturated soil conditions exist on the road as per 14 CCR 963.1(j), which includes the months on either side of the winter period.

RESPONSE TO QUESTION #8

It is not necessary to restate the rules. The Administering RPF and the LTO are aware of the rules.

Additionally Item #23 WINTER OPERATIONS includes Saturated soil conditions defined:

Saturated soil conditions

On logging roads and landing surfaces, this condition may be evidenced by: a) reduced traction by equipment as indicated by spinning or churning of wheels or tracks in excess of normal performance, b) inadequate traction without blading wet soil, c) soil displacement in amounts that cause visible increase in turbidity of the downstream waters in receiving Class I, II, III, or IV waters, or in amounts sufficient to cause a turbidity increase in drainage facilities that discharge into Class I, II, III, or IV waters, d) *pumping of road surface materials by traffic*, or e) *creation of ruts greater than would be created by traffic following normal road watering, which transports surface material to a drainage facility that discharges directly into a watercourse.* (Emphasis added)

9. As per 14 CCR 1034(x)(1), "Boundaries of logging area (shall be shown on quadrangle map or its equivalent)". Please provide on at least one map the boundary map symbol for the "THP Boundary" or "Logging Area."

RESPONSE TO QUESTION #9

At least one map shall include the symbol "THP Boundary"

10. Unit 338 is designated for cable yarding as show on page 26. Please identify the areas to be used tailhold locations. Additional acres for operating areas (including tailhold locations) need to be part of Item #8 and either included or the acreage difference explained under Item #14. If tailholds on tractors will be utilized on existing roads, those roads will need to be identified as an appurtenant road.

RESPONSE TO QUESTION #10

The additional area outside of the THP boundary where tailholds may potentially occur shall be added to the "Logging Area" and demonstrated on the THP maps.

11. The Appurtenant Road maps on pages 30 and 32 show portions of Winton Road, although not identified as appurtenant. If Winton Road is owned or controlled by the Timberland Owner it needs to be identified as an appurtenant road and mapped to the intersection with a public road. Appurtenant roads may be shown on a map which may be planimetric with a scale as small as one-half inch equals one mile as per 14 CCR 1034(x).

RESPONSE TO QUESTION #11

An additional map shall be added to the THP designating Winton Road as "Appurtenant".

12. The legend symbols associated with THP maps should be specific to each map so that particular information is readily discernible and pertinent to the map without searching for references that are not shown. Please review the THP maps, and revise accordingly.

RESPONSE TO QUESTION #12

I do not entirely understand the question. I believe the question is referencing map and map legend continuity?

While creating the Silviculture series of maps I listed all of the Silvicultures within the THP on all of the Silviculture maps. However there are some maps within the series that may not include all of the Silvicultures listed within the legend. The map legends shall be revised to only list items that are shown on their respective map.

13. The Notification of Lake or Streambed Alteration is located in Section V of the THP. Please include this document at the end of Section II as directed by Item #26(d) since this is an operational part of the plan.

RESPONSE TO QUESTION #13

The Notification of Lake or Streambed Alteration shall be moved to the end of Section II

14. The Table of the CTMS species composition on page 42 indicates that there oaks contribute to 5 square feet of basal area per acre in the pre-harvest stand although page 99 states that oaks are in abundance and consists of approximately 22 percent of the basal area per acre. Please revise.

RESPONSE TO QUESTION #14

The table on page 42 utilizes only the CTMS plots that occurred within the THP boundary minus the WLPZs. The discussion on page 99 utilizes all of the CTMS plots within the THP boundary plus at least one plot outside of the THP boundary; a circle around the THP harvest areas. Page 42 discussion is supporting Vegetative Stand Conditions; i.e. forest composition of where harvest of Oaks may occur. Page 99 discussion is supporting Cumulative effects.

15. The Lower Blue Creek Planning Watershed is within the Upper Mokelumne River Hydrological Unit, and the lower portions of the Mokelumne River are listed under Section 303(d) of the Federal Clean Water Act with a pollutant / stressor of copper and zinc. As per 14 CCR 898, "When assessing cumulative impacts of a proposed project on any portion of a waterbody that is located within or downstream of the proposed timber operation and that is listed as water quality limited under Section 303(d) of the Federal Clean Water Act, the RPF shall assess the degree to which the proposed operations would result in impacts that may combine with existing listed stressors to impair a waterbody's beneficial uses, thereby causing a significant adverse effect on the environment."

Please check the following web page and include within the cumulative impacts assessment a list the stressors and discuss how this project as proposed will not combine with the listed stressor

to have a significant impact on the 303(d) listed waterbody. A complete list of these impaired waterbodies is found at <http://www.swrcb.ca.gov/rwqcb2/TMDL/303dlist.htm>.

RESPONSE TO QUESTION #15

Please see additional page 79.1 where Section IV shall be revised to include the following discussion:

303(d) Listing: Water Quality Concerns

The State Water Resources Control Board in its Clean Water Action Section 303(d) submittal designates the Mokelumne River downstream of Pardee Dam as an impaired waterway. The impairment designation is currently for copper and zinc due to the presence of these elements in concentrations above the hardness based aquatic toxicity criteria. The presence of these metals is linked to abandoned mines in the Mokelumne watershed. The largest of these mines is the Penn Mine located on the southeastern shore of Camanche Reservoir. The Penn Mine site encompasses approximately 140 acres, with 20 or more shafts, several adits, and numerous open pits and cuts, two smelters and several mills. Historically, contaminated surface runoff from the Penn Mine flowed directly into the Mokelumne River. Completion of Pardee Dam, about 3 miles upstream from the mine, in 1929 decreased the stream flow available for diluting the contaminated runoff.

In 1998, the U.S. Corps of Engineers, the Central Valley Regional Water Quality Control Board, and East Bay Municipal Utility District (EBMUD) initiated the Penn Mine Environmental Restoration Project under a Federal and Superior Court Settle agreement to clean up Penn Mine. Restoration and mitigation work began in 1998 and was completed in November of 1999, at a cost of \$10,340,000. The work included landfill construction, mine waste excavation and disposal, landfill closure, re-vegetation, and monitoring well construction.

CVWQCB sources indicate that ongoing monitoring at the Penn Mine site is required before copper and zinc can be removed as an impairment concern.

The CVWQCB has identified the sources of the copper and zinc as "Resource Extraction" (mining) of those minerals from the above-mentioned Penn Mine. The water body directly upstream from the Lower Mokelumne River, that is the Upper Mokelumne River, is not 303(d) listed for copper and/or zinc.

Timber harvesting activities in the Upper Mokelumne Watershed will not contribute heavy metals such as copper or zinc to the Lower Mokelumne River. Rock formations rich in copper and zinc are found generally several miles west of this proposed Timber Harvesting Plan. In addition, research from CH2MHill, the Board of Forestry, UC Cooperative Extension and other agencies and/or organizations conclude that timber harvesting has little or no significant effect on the presence of heavy metals in watercourses. Therefore, there will be either no effect or no significant effect from this proposed Timber Harvesting Plan, and other proposed Timber Harvesting Plans in the Upper Mokelumne, on the water quality parameters—namely copper and zinc—which caused a 303(d) listing of the Lower Mokelumne River.

16. The boundary of biological assessment area (BAA) described on page 66 and shown on the BAA Map on page 67.2 is the Watershed Assessment Area and the area outside of the Lower Blue Creek Watershed that is within ½ mile of the THP. The BAA should be established which would allow for the assessment of all species identified during the process of scoping, and consideration of specific habitat requirements.

As stated in Technical Rule Addendum #2, Biological assessment areas will vary with the species being evaluated and its habitat.

Typically, raptor species would be assessed for an area within 1 to 1.3 miles of the THP area. The plan states on pages 18 and 87 that three goshawk sightings are within one mile including GO328, which is outside of the BAA. In addition the California spotted owl sighting CA033 referenced on pages 18 and 87 is located outside of the BAA. It appears that at least two (2) additional California spotted owl territories located outside of the BAA are within one mile of the THP boundaries. The BAA needs to be large enough to adequately evaluate known raptor territories where potential habitat is within or adjacent to the plan area. Please revisit the biological assessment to include an assessment area large enough to assess the plan's potential to impact all of the species identified during the scoping process.

RESPONSE TO QUESTION #16

The scoping process (determining a range of the project) for this THP included all of the surrounding planning watersheds up to and beyond 1.3 miles from the harvest boundary. Discussion relative to the BAA size is disclosed on page 66 & 67.

17. Mitigations to reduce cumulative watershed impacts have been provided in Section IV on page 77, and Specific Measures to Implement #5 provided certain methods to be employed to mitigate potential erosion and sediment runoff concerns of site preparation activities. Please provide these measures in Section II of the plan.

RESPONSE TO QUESTION #17

Section II shall be revised to list all operational mitigations relative to the LTO.

18. Certain mitigations to reduce cumulative watershed impacts have been provided in Section IV on page 78. Please also provide all operational mitigations in Section II, and may included #3, #6, and #7 under Watershed Concerns and Mitigation, and #2, #3, #4, and #7 under Sediment.

RESPONSE TO QUESTION #18

Section II shall be revised to list all operational mitigations relative to the LTO.

19. Item #14(b) on page 4, and #1 of Watershed Concerns and Mitigation on page 78 states that at least 100 square feet of basal area will be retained within the WLPZ, although #1 of Water Temperature on page 79 states that at least 75 square feet of basal area per acre will be retained. Please revise for consistency.

RESPONSE TO QUESTION #19

Page 79 shall be revised to read ". . . at least 100 square feet . . ."

20. The information and table on page 89 appear to be irrelevant to the proposed plan as Unit #625 was included in the North Spur 2 THP (4-07-33/AMA-4). Please revise or remove.

RESPONSE TO QUESTION #20

The inclusion of this table is an editing error and said table shall be removed from the THP.

21. The Sediment discussion on page 78 under Item #6 states Wildlife Retention Units will provide interception and a filter for potential sedimentation, and the Oaks discussion on page 99 the plan indicates that oaks may be retained within Wildlife Retention Areas (WRA). On page 99 the plan states "Specific criteria for the selection of WRA's are listed in Section II of the THP." There does not appear to be mention of WRA's within Section II. Item #38 discusses that all clearcuts units shall be evaluated for the inclusion of Retention Areas. Please revise as necessary.

RESPONSE TO QUESTION #21

Section II shall be revised to change "Retention Areas" to "Wildlife Retention Areas". Additionally the flagging code shall be changed to utilize ORANGE & WHITE flagging to designate the Wildlife Retention Areas

22. Section IV of the plan provides information regarding per acre levels of snags and oaks located within the Biological Assessment Area (BAA) on the timberland owner's property. In addition, to adequately evaluate the combined effect of management, please estimate the level of these resources on the BAA as a whole.

RESPONSE TO QUESTION #22

The per acre levels of snags and oaks located within the USFS area that is additionally within the BAA is unavailable in a numeric form. However, page 99 discusses visual assessment of per acre levels of snags and oaks located within the USFS adjacent ownership.

23. The Late Seral discussion on page 99 states that there is no late successional or old growth forest stands within the THP area. Please provide an estimate of percentage and acreage by land base within the biological assessment area of late seral stands. Please discuss the presence or absence of trees within the harvest area that contain old tree characteristics.

RESPONSE TO QUESTION #23

Small pockets of late successional forest may occur within the BAA. These pockets, or groups of individual trees, mostly occur within the Blue Creek Watercourse and on the adjacent landowner; USFS.

It is unnecessary to provide an estimate of the percentage and acreage by land base within the biological assessment area of late seral stands.

Trees that exhibit old tree characteristics is a subjective term and there is no widely accepted standard to use as a guide. However, some trees that exhibit old tree (late seral) characteristics such as large diameters in combination with large limbs high within the canopy do exist with the Selection silviculture area adjacent to Cable unit # 338. These individual trees occur dispersed and are surrounded by second growth stands that do not exhibit these same characteristics. Trees that may exhibit old tree characteristics are mostly absent from the THP area.

24. Please discuss under the Traffic Assessment Area on page 101 whether or not any public roads have any maintenance problems as per Technical Addendum #2.

RESPONSE TO QUESTION #24

It is likely that some of the public roads have maintenance problems well beyond the scope of this project.

25. Section II, Item 26(d): Pursuant to Fish and Game Code 1611, item 26(d) of the THP has provided notification to the Department of Fish and Game (DFG) of a proposed project that may alter the bed, bank, or channel of a lake or streambed. The THP review process is used to meet the DFG CEQA review requirements under Fish and Game Code (FGC) Section 1611. The DFG received this notification on March 14, 2008.

The DFG will need the following items to begin the process of issuing a Lake or Streambed Alteration Agreement (LSAA or Agreement):

- A base fee of \$1200 plus \$100 for each project (fees) sent to:
Department of Fish and Game
1600 Program
1701 Nimbus Rd., Suite A,
Rancho Cordova, CA 95670
- A copy of the THP Items 1-13 sent with the fees.

Once the DFG has received payment for all of the projects associated with the 1611, the timeline for issuing a draft Agreement to the applicant will begin. In general, the applicant should receive a draft Agreement within 90 days from the date fees were received. Upon notification that Cal Fire has approved the THP and all LSAA fees have been received, the DFG will finalize the Agreement. Any work described as part of the 1611 notification is not authorized until the applicant has received the finalized Agreement.

Visit the Lake or Streambed Alteration Agreement section of our website at www.dfg.ca.gov/habcon/1600 for further guidance with this process, review of the 1600 code, and understanding of the timelines. (DFG #1)

RESPONSE TO QUESTION #25

Ok

26. Provide a second notice to the tribes. (ARCH #1)

RESPONSE TO QUESTION #26

A second notice to the tribes shall be sent after the PHI such that any additional recommendations generated at the PHI can be incorporated into the notification; thus minimizing repetitive notification letters.

CDF Inspector - respond to the following questions:

- a. Please evaluate the performance based hazard reduction and slash treatment proposed on pages 16 and 17 for effectiveness and enforceability.
- b. Please evaluate the pre-harvest levels of snags and oaks and if potential retention that is expected would be sufficient in regards to wildlife values. The plan states on page 99 that the average pre-harvest oaks presence is 26 square feet of basal area per acre.
- c. Please evaluate the likelihood and enforceability of the creation of at least one (and preferably two) retention areas per clearcut unit as stated under Item #38.
- d. Please evaluate the harvest units in regards to Wildlife Habitat Relationships (WHR), and if there are portions of WHR 5M or 5D, which is identified by a canopy of greater than 40 percent of 24 inch DBH trees, or WHR 6 that is distinguish by 24 inch DBH trees over a distinct layer of 6 to 24 inch trees.
- e. Please contact Sandra Jacks at (916) 358-2916 (sjacks@dfg.ca.gov) to arrange a mutually agreeable PHI date.
- f. Please contact Chris Cochrane at (916) 464-4820 (cmcochrane@waterboards.ca.gov) to schedule a Mutually Agreeable PHI date and time.
- g. Please contact Bill Short (916) 322-4853 (Bill.Short@conservation.ca.gov) to schedule a Mutually Agreeable PHI date and time.
- h. Please notify Cal Fire Archaeologist Linda Pollack (559) 243-4119 Linda.Pollack@fire.ca.gov to arrange a mutually agreeable PHI date.
- i. Please notify Cal Fire Archaeologist Tony Overly Tony.Overly@fire.ca.gov to arrange a mutually agreeable PHI date.
- j. Please notify Mike Bacca at (559) 243-4114 of the PHI date.
- k. Please notify Bill Solinsky at (559) 243-4153 of the PHI date.

/s/ Solinsky

4-08-05/CAL-1 Squiggly THP

TO: Candace Gregory, Southern Region Chief

DATE: - -08

FROM: Mike Noonan Unit Chief

*****SECTION II*****

Check items that are applicable to the proposed THP.

YES	/	NO	/	NA	
x	/		/		- Silvicultural method appropriate?
x	/		/		- Does site index appear correct?
x	/		/		- EHR accurate?
x	/		/		- Unstable areas properly indicated?
x	/		/		- Winter operations appropriate (if proposed)?
	/		/	x	- If winter operations are proposed in the future, should the amendment be considered "substantial"?
x	/		/		- Watercourse classifications accurate?
x	/		/		- Watercourse protection adequate?
	/		/	x	- Meadow and wet area protection adequate?
x	/		/		- Road locations feasible?
	/	x	/		- Erosion control adequate?
	/	x	/		- THP map and addenda accurate?
x	/		/		- Are domestic water supplies adequately protected?
	/	x	/		- Archeological information complete?

If any of the above answers are answered NO, provide explanation in PHI report.

/	/	x		-Special Treatment Area required?
/	x	/		-Does THP overlap an existing THP, or is stocking or completion outstanding on all or a portion of the proposed plan?
/	/	/	x	-Wild & Scenic River affected?
/	/	/	x	-Is THP adjacent to a state or national park? If so, was park contacted to attend preharvest inspection?
/	/	/	x	- Will a response to concerns be required from the RPF prior to approval to mitigate potential impacts?
x	/	/	/	-T & E plant or wildlife species affected?

PREHARVEST INSPECTION REPORT

1. Did weather conditions interfere with conducting the PHI?

 Yes No

During the 2 day PHI weather conditions were sunny and warm with temperatures in the mid to high 60's

2. a. Personnel attending the preharvest inspection were:

Thomas Tinsley	CALFIRE-Area Forester	April 28 & 29, 2008
Alan Peters	CALFIRE-Forester	April 28, 2008
Mike Bacca	CALFIRE-Review Team	April 28, 2008
Gerrit Fenenga	CALFIRE-Arch	April 28, 2008
Tony Overly	CALFIRE-Arch	April 28 & 29, 2008
Ed Struffenegger	SPI-Dist. Manager	April 28, 2008
Frank Mulhair	SPI-Forester	April 28 & 29, 2008
Kevin Roberts	SPI-Biologist	April 28, 2008
Chris Cochran	WQ	April 28, 2008
Bill Short	CGS	April 28, 2008
Dan Applebee	DFG	April 28, 2008
Rhianna Lee	DFG	April 28, 2008
Mark Stewart	EBMUD Rep.	April 28, 2008
Steve Wilensky	Calaveras Dist #2 Supervisor	April 28, 2008
Bob Dean	CCWD	April 28, 2008

- b. Personnel contacted regarding the preharvest inspection:

Linda Pollack CALFIRE-Arch *via email*

3. Was Notice of Intent properly posted at timber harvesting plan site (14 CCR 1032.7)?

 X Yes No (explain below)

The RPF stated 2 Notices of Intent were posted for the proposed plan.

Neither was observed during the PHI. The RPF stated they had been torn down and he had reposted one on Winton Road, a well traveled privately owned (SPI) road.

4. If timber operations including road and landing construction or skidding will occur on adjacent ownerships, have the adjacent owners been added to the Timber Harvesting Plan and Notice of Intent as additional timberland owners?

 YES NO (explain below) x N/A

PROJECT DESCRIPTION

5. Has the project area been accurately described within the THP as per 14 CCR 1034 (jj)?

 X Yes No If no, summarize below:

TIMBER STAND DESCRIPTION

6. Is the proposed harvest area zoned Timber Production Zone by the county [933.1(a)(7)]?

☐ Unknown ☒ Yes ☐ No

7. Are timber stands correctly described in the Timber Harvesting Plan?

☒ Yes ☐ No (list corrections below)

The timber stands found on the project area are common for these elevations (4460 and 5880 feet) in the Central Sierra. Commercial mixed conifers species found in the area are representative of those found within the THP area. The RPF states, commercial tree species typically found in a Sierra mixed conifer forest are present in the following representative distributions based on basal area: ponderosa pine 20%, white fir 21%, sugar pine 10%, Douglas-fir 3% and incense cedar 42%. These percentages appear to be accurate based on field review. The area also contains stands of hardwoods, both black and live oak which make up approximately 5 % of the stands. Oaks, specifically black oaks, appear to have limited distribution as a stand component throughout the proposed plan area. Understory species/vegetation include manzanita, white thorn, gooseberry, deer brush, bear clover, California laurel and riparian vegetation such as white alder, cottonwood, big-leaf maple and dogwood.

8. Have timber site classes been correctly identified and accurately depicted [14 CCR 1034(x)(12)]? Consider even-aged regeneration method limitations, and differences in minimum stocking requirements.

☐ Yes ☒ No (explain below)

The RPF indicated that the timber site classification had not been included on a THP map. The RPF shall indicate on the "General Location" map the entire plan area is site I timberland.

Recommendation #1

SILVICULTURE

9. Are the silvicultural methods prescribed appropriate for stand conditions?

☒ Yes ☐ No (explain below)

Three silvicultural methods are proposed for use this entry, two even-aged systems, Clearcutting and Shelterwood removal and one uneven-aged, Selection. All appear to be appropriate given current stand conditions. Two of the three Shelterwood removal units (unit #350 & #351) were reviewed during the PHI. The pre-harvest stand condition in both clearly indicates adequate regeneration is present in species which are the progeny of the overstory. 21 even-aged clear cut units are proposed for harvest ranging in size from 12 to 26 acres which are irregular in shape and variable in size to the extent possible according the RPF. During the PHI the RPF agreed to list in section III of the proposed plan the acreages for each of the clear cut units. Recommendation #2

10. For even-aged management: If a "regeneration step" harvest is proposed, will the provisions of 14 CCR 953.1(a) be met?

☒ Yes ☐ No ☐ N/A

11. For uneven-aged management: Are enforceable mitigation measures needed to ensure the establishment and/or maintenance of a balanced stand structure, and establishment of new reproduction?

☒ No ☐ Yes (explain below) ☐ N/A

12. If Group B species are proposed for management [14 CCR 952.7(c)]: Will the site occupancy of Group A species be reduced relative to Group B species?

☒ No ☐ Yes ☐ N/A

The RPF states under item #35, section II- oaks, preferably larger oaks shall be protected/managed to ensure they are maintained as a stand component. Oaks identified for protection shall have cavity nesting and mast production attributes as well as others listed under item #35, page #20 section II of the proposed plan. The plan narrative states, "The objective is to maintain retention areas that include oaks as undisturbed islands into the future within the context of the even-aged units... .. If present a minimum of two to three oaks (preferably greater than 25 inches DBH) shall be left in each even-aged regeneration unit. Oaks outside of the even-aged regeneration units shall be protected and not felled, with exception to those that are a hazard or threaten the safety of those operating the plan." As stated above under item # 7 oaks, specifically black oaks were not in abundance in many of the even-aged units proposed for harvest. A general reconnaissance of the upper end of the lower Blue Creek watershed in the proposed plan area indicates black oaks appear to have an uneven distribution, depending on canopy closure and elevation oaks appear to be prevalent in some areas but not others. During the PHI and general watershed reconnaissance many of the existing even-aged units observed did contain a black oak component either in groups in "retention areas" or singularly as part of the unit. In a number of units oaks removed during a previous harvest were observed to have re-sprouted from their root collars and were growing up as a component of the conifer stand.

In response to RTQ b & c, as the RPF pointed out in his response to RTQ #14, the discrepancy in the basal area of oaks (5 sq ft vs. 26 sq ft.) stems from the fact that the 5 sq ft of oak is present within the units proposed for harvest and the 26 sq ft is a per acre watershed value. The topic of oaks, oak plan language, retention areas and enforceability was a lengthy discussion on two occasions during the PHI. During the PHI the review team and plan proponent could not sufficiently resolve this issue of how many oaks should be left of those that are present (retention areas), what would enforceable language in the plan be to ensure retention, and if current oak retention practices were limiting when one considers overall watershed wildlife values. The RPF requested to know the basis of the 400 sq ft per 40 acre language in the rules. The review team DFG representatives said they were research the history as to where those oak retention levels originated. The RPF agreed to re-visit with his District Manager the oak language in the proposed plan and discuss further with CALFIRE Fresno review team and DFG a resolution to this issue. Snag levels throughout the plan area and general watershed do not appear to be a limiting factor for wildlife.

13. Comments/general observations regarding silviculture.

During the PHI the RPF agreed to remove the phrase "no harvest groups" from the proposed plan. Under item #38 section II of the proposed plan the RPF states, "Larger diameter conifer trees within the retention areas may be removed during harvest." Recommendation #3

Sample mark was reviewed during the PHI for the following silvicultural prescriptions:

Two of the three Shelterwood removal units (#350 & #351) were 100% marked prior to the PHI.

Mark was in blue and prescription appropriate.

WLPZ selection 100 % mark along class 1 watercourse, Blue Creek – A1 was light. Trees in all the representative diameter/age classes had been designated for removal. Mark was in blue and the prescription appropriate.

No potential "retention areas" within even-aged units had been flagged prior to PHI for evaluation. The proposed plan under item #35 section II describes those stand attributes that lend themselves for inclusion in "retention areas".

As agreed to by the RPF during the PHI the THP maps on THP pages #26, 30 & 34 shall be changed to show the area north of watercourse 2F is not proposed for selective harvest this entry. Recommendation #6

MAXIMUM SUSTAINED PRODUCTION OF HIGH QUALITY WOOD PRODUCTS

14. Does the THP comply with goals of 14 CCR 953.10 to restore, enhance, and maintain the productivity of the state's timberlands?

☒ Yes ☐ No (explain below)

It appears the proposed plan shall be enhancing, maintaining and restoring timberlands where feasible to obtain the goal of MSP while giving consideration to other resources values.

15. Will any growing stock be harvested in a manner which significantly delays reaching or maintaining MSP [14 CCR 953]?

☒ No ☐ Yes (explain below)

16. Does the THP comply with the MSP requirements of 14 CCR 953.11?

☒ Yes ☐ No (explain no answer to option "C" below, and explain yes or no answer if using option A or B)

As stated under item #14, section II of the proposed plan. "This THP conforms to SPI's approved option A demonstration of MSP on file with CDF at its Southern Forest District Office." (Fresno)

Will the post-harvest stand:

- a. Obviously satisfy minimum stocking requirements (countable trees only)?

☒ Yes ☐ No ☐ N/A

- b. Contain required numbers of seed trees (if required)?

☐ Yes ☐ No ☒ N/A

- c. Contain leave trees that are of good form (at least 30% live crown ratio with pointed tops) and that are capable of good future growth capacity?

☒ Yes ☐ No ☐ N/A

- d. Leave trees are uniformly distributed throughout the area?

☐ Yes ☐ No ☒ N/A

Approximately 360 acres of the proposed plan is even-aged management clear cut. Leave trees shall not be uniformly distributed in these areas.

- e. Contain a species mixture similar to preharvest and/or favoring high-value species?

☒ Yes ☐ No ☐ N/A

- f. Post-harvest average stand diameters are larger than preharvest (for thinning prescriptions)?

☐ Yes ☐ No ☒ N/A

- g. A regeneration and site preparation plan has been submitted, where required, that is sufficient to ensure prompt regeneration of the site?

☒ Yes ☐ No ☐ N/A

See the site preparation addendum on pages # 5-7 of the proposed plan. The addendum includes a provision for site preparation in the Shelterwood removal to "manage forest fuels and/or attain a more optimum stocking level."

- h. Stand information was verified by:

☒ Ocular ☐ Sample Plots ☐ Cactos/Cryptos
☐ Other (explain below)

- i. Stands have been marked as follows (including stump mark if necessary):

☐ All Trees ☐ None ☐ Percent ☐ N/A
☒ Cut Tree ☐ Leave Tree

Was the mark representative and sufficient to evaluate the prescription?

☒ Yes ☐ No ☐ N/A

The review team evaluated the WLPZ selection sample mark along portions of watercourse 1A – Blue Creek. Harvest trees within the WLPZ's are marked with blue paint. The harvest mark appeared to be "light" and should meet the requirements pursuant to 14 CCR 956.5 Protection Measures. The RPF stated the WLPZ was 100% marked.

Two of the three Shelterwood removal units (#350 & #351) were 100% marked prior to the PHI. Mark was in blue and the prescription appropriate.

- j. Will additional marking, to be approved by CDF, be required prior to the start of operations?

☒ No ☐ Yes (explain below)

HARVESTING OPERATIONS

17. Are exceptions or alternative practices proposed that are not fully explained and justified? If yes, discuss potential impacts and recommendations below:

☒ No ☐ Yes (explain below) ☐ N/A

18. Are tractor operations proposed on: [14 CCR 934.2(f)(1)]?

- a. ☒ No ☐ Yes Slopes >65%
b. ☒ No ☐ Yes Slopes >50% with a HIGH or EXTREME EHR?
c. ☒ No ☐ Yes Slopes >50% that lead without flattening
to sufficiently trap sediment before
reaching a watercourse or lake?

If yes to a, b, or c above:

- d. Is such tractor use appropriate?

☐ Yes ☐ No (explain) ☒ N/A

- e. In your opinion, has the RPF met the standards of 954.2(f)(3) with a clear explanation, and justification as to why the application of the standard rule is either not feasible, or would not comply with 14 CCR 954?

☐ Yes ☐ No (explain) ☒ N/A

19. Will tractor operations be limited to existing tractor roads that do not require reconstruction on slopes between 50 and 65% where the EHR is moderate [14 CCR 954.2(f)(2)]?

☒ Yes ☐ No (answer a & b below) ☐ N/A

- a. Is such tractor use appropriate?

☐ Yes ☐ No (explain) ☒ N/A

- b. In your opinion, has the RPF met the standards of 14 CCR 954.2(f)(3) with a clear explanation, and justification as to why the application of the standard rule is either not feasible, or would not comply with 14 CCR 934?

☐ Yes ☐ No (explain) ☒ N/A

20. Did the RPF flag tractor roads prior to the PHI as required by 14 CCR 954.2(f)(3)?

☐ Yes ☐ No (explain below) ☒ N/A

21. Comments/general observations regarding harvesting operations.

Reminder: Yarding systems proposed for use include tractor and cable (skyline). The RPF indicates under item #16 section II, cable yarding operations, may be performed in any tractor operating areas.

Pursuant to 14 CCR 895.1, any change in type or location of logging (yarding) system or basic equipment type is considered a substantial deviation to the plan. As such if any change in yarding systems occurs a substantial deviation/ major amendment to the plan shall be submitted. The amendment shall be accompanied by a yarding systems map identifying the location of the change.

During the PHI the RPF agreed to the following recommendations:

Shall change item #16 to include cable, high lead as a yarding system to be used during operations. Recommendation #4

Shall change the wording under item # 20 to make it clear that ground-based equipment shall not be used in cable yarding areas or answer item #20 "YES". Recommendation #5

Shall change the appropriate THP maps to indicate the areas within unit # 350 which are greater than 50% slope. Recommendation # 7

Shall change the yarding system in portions of unit #338 from cable to tractor yarding and show the new road construction in unit #338 out to the break in slope to facilitate cable yarding of the lower portions of the proposed even-aged unit. RPF shall make all the changes to the proposed plan narrative and maps as necessary. Recommendation #8

ROADS AND LANDINGS

22. Have all THP roads and landings and all appurtenant roads been correctly located and classified on the THP map?

 Yes X No (explain below) N/A

The proposed plan states in item #25, section II on page #12 under road reconstruction, that there are 14 segments of temporary road. During the PHI it was determined that a number of these road segments were old skid trails and not roads. The review team assessed temporary roads (skid trails) in units # 340, 350 & 365 leading to unit #94. As such these segments of skid trails proposed by the RPF for use during log haul need to be identified as new road construction in the proposed plan. The review team did not visit all 14 segments identified as temporary road, but requested the RPF re-visit all 14 segments to determine their proper classification, then make the necessary changes to the proposed plan narrative and maps accordingly. All segments of proposed new road construction shall be described in the plan and established pursuant to 14 CCR 963. Recommendation # 9

In addition, the lower WLPZ road in unit #162 is identified as a seasonal road. Project P2 includes the installation of a temporary culvert crossing of watercourse 2H to be removed after operations in this unit. The RPF shall re-classify this road as temporary and map accordingly in the proposed plan. Recommendation #10

In addition, project P1 described under item #25, section II on page #12 involves new road construction. The RPF shall describe the new road construction including the approximate length of the new road proposed. Given the proposed new roads jump up gradient the entire segment of new road including sidecast shall be straw mulched and seeded or slash packed by "walking in" slash Recommendation #11

23. Are any exceptions or alternative practices proposed that do not meet the standards outlined in the rules for exceptions or alternative practices?

☒ No ☐ Yes (explain below) ☐ N/A

24. Are proposed construction methods and mitigations as described in the THP sufficient to protect resource values?

☐ Yes ☒ No (explain below) ☐ N/A

See recommendations above under item # 22

25. Comments/general observations regarding roads and landings.

During the PHI the RPF stated a number of the temporary roads and new road construction segments may be obliterated upon completion of operations if they are within the boundaries of an even-aged unit. This would be done as part of unit site preparation to increase planting opportunities and bring more ground under production. The RPF stated that specifically which roads were to be obliterated is unknown at this time and primarily the decision of the regeneration forester. After discussion the review team requested the RPF include a statement in the proposed plan describing the obliteration of certain road segments and then when the decision is made as to which would be site prepped to bring more ground under production a minor deviation shall be submit amending the document. Recommendation #12

As agreed to by the RPF during the PHI the proposed plan shall include a statement that NO landing shall be excavated at the terminus of the new road construction segment in unit #350. Recommendation #13

WATERCOURSE PROTECTION

26. Have watercourses been correctly described and classified within the THP?

☒ Yes ☐ No (explain below) ☐ N/A

All watercourses evaluated by the review team appear to be correctly classified and described in section III of the proposed. Watercourses visited during review include 1A, 1B, 2B, 2H, and 2I as well as a number of tributary class III watercourses. The proposed plan identified 2 class I watercourses, 1A-Blue Creek and 1B-Cherry Creek both were reviewed. Blue Creek is in a stable, good condition, contains numerous pools, abundant large woody debris and as stated in the proposed plan has greater than 80 % canopy for most of it's length. Locally Blue Creek is well known as an excellent fishing spot with healthy trout populations. Over the years the Calaveras Fish and Game commission has also stocked portions of Blue Creek.

27. Are there any in-lieu or alternative practices proposed that do not meet the standards outlined in the rules for in-lieu or alternative practices?

☒ No ☐ Yes (explain below) ☐ N/A

One in-lieu practice involving the use of an existing landing and skid trail within the WLPZ of a class I watercourse, 1B-Cherry Creek was proposed (WLI). . The entire road length within unit # 336 which the RPF proposed to skid on is within the WLPZ of the class I watercourse-Cherry Creek. In a number

of locales along this segment the road is in close proximity to the creek. The review team was concerned with the proposed skid length and the volume of logs to one landing and that too much disturbance may result in potential erosion and sediment issues given the roads proximity to Cherry Creek. The existing skid trail systems, as well as possible alternative landing locations above and outside the existing WLPZ were considered. After field review and discussion the review team made a number of recommendations the RPF agreed to.

A second landing location shall be established in what appears to be an old borrow pit adjacent to the WLPZ road. This will shorten up the skidding length and log volume to any one landing ultimately reducing the potential for erosion and sediment concerns. If a landing slash pile is generated from timber operations in this landing, the pile shall have a berm established around it to prevent any ash from potentially migrating into the stream course. The inside ditch presently in place shall be maintained after operations in the landing are complete and prior to the winter period. To reduce the size of the potential landing pile, as much slash as possible shall be pushed back up the skid trail system. Only trees harvested from between the WLPZ road and Cherry Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the class 1 WLPZ. The RPF shall make all the changes to the proposed plan and maps as necessary. Recommendation # 14

All of the existing WLPZ road drainage facility lead outs on Cherry Creek presently have 3 to 6 inch angular rock in them acting as energy dissipaters to catch sediment. The review team concluded the rock has been effective in reducing the potential for sediment delivery to adjacent Cherry Creek. All drainage facility lead-outs shall be re-rocked with similar size material prior to the start of the winter period the year of timber operations. The rocked area shall be the width of the lead-out and at least ten feet down or to the break in slope which ever is less. Recommendation # 15

The RPF shall remove the phrase "if needed" from the statement, "If needed, dips or drivable waterbars locations shall be designated by the RPF." Under Road Segments within WLPZs, item #38, section II, page# 22. Recommendation # 16

In addition, during field review the RPF stated a desire to skid on the temporary road within the WLPZ of class 1 Blue Creek in unit # 162. This in-lieu practice has not been addressed in the proposed plan. The RPF shall write an in-lieu practice to use the WLPZ road within unit #162 for skidding purposes. The RPF shall make all the changes to the proposed plan and maps as necessary. Recommendation # 17

Note: The temporary road in unit #162 shall be abandoned after operations are complete and the temporary culvert crossing has been removed. The WLPZ road segment is at the upper edge of a 150 WLPZ with an adequate vegetative strip between the road and Blue Creek.

28. Are proposed protection measures for watercourses, lakes and wet areas adequate to protect the beneficial uses of water and riparian habitat?

☒ Yes ☐ No (explain below) ☐ N/A

29. Are watercourse crossings necessary, appropriate and properly located?

☒ Yes ☐ No (explain below) ☐ N/A

- a. Are watercourse crossings to be used when water is present?

☒ No ☐ Yes (explain below)

During field review one small class II watercourse 2I was evaluated potentially for use when water is present. The watercourse crosses a seasonal road proposed for log haul and currently has no drainage structure in place. 2I was flowing the day of the PHI. The review team considered the watercourse crossing minor in scope and review team DFG representatives felt a 1600 series application would not be needed, but felt it warranted some protection after the RPF stated he may need to use the crossing while it was wet. The RPF agreed to include this as a new project, P5. The crossing shall be rocked with 3 to 6 inch rock, the width of the road to a minimum depth of 6 inches. Rocking shall extend 15 feet either side of channel centerline. This project shall be completed regardless of whether the crossing is wet or dry at the time of use. The project shall be completed prior to the start of the winter period the year of use if dry or before use if wet. Recommendation #18.

30. Are winter operations appropriate?

 X Yes No (explain below) N/A

31. If winter operations are appropriate, are additional mitigations needed to protect the beneficial uses of water?

 X No Yes (explain below) N/A

32. Have the downstream domestic water supply notification requirements been properly met (14 CCR 1032.10)?

 X Yes No (explain below) N/A

33. Is this THP in a watershed declared "sensitive" by the Board of Forestry?

 X No Yes (If yes, provide discussion below.)

34. Comments/general observations regarding watercourse protection.

All three proposed projects (P1, P2 & P3) were evaluated by the review team during the PHI. The review team recommendation #11 for P1 is stated above under item # 22.

P2 narrative needs to include the rock specifications described in P3. Recommendation # 19.

In addition, a new project P4 shall be included in the proposed plan.

P4-shall re-establish the outside berm on the seasonal road crossing of watercourse 3I in unit #364. The berm shall carry surface run-off away from the crossing to a new leadout approximately 100 feet down from the crossing. The existing dip above the 3I crossing shall be maintained.

Recommendation # 20

The RPF agreed to the following recommendations during the PHI:

The locations of all waterholes potentially to be used for dust abatement purposes shall be identified on the appropriate THP map. Recommendation #21

*RPF shall remove the asterisks (**) from the watercourse table for those watercourses not flagged to reduce the WLPZ width by 25 feet for cable yarding. Recommendation #22*

RPF shall amend into the THP document DFG 1600 series Stream Alteration Agreement (SAA) when approved. Recommendation #23

GEOLOGY, EROSION HAZARD RATING & HAZARD TREATMENT

35. Have soils within the THP area been correctly classified?

☒ Yes ☐ No (explain below) ☐ N/A

36. Has the erosion hazard rating for soils within the operating area been correctly calculated, as per Technical Rule Addendum #1?

☒ Yes ☐ No (explain below) ☐ N/A

The erosion hazard rating (EHR) appears to have been correctly calculated for the soils, slopes, silviculture and yarding systems on the proposed plan.

37. Are operations proposed on unstable areas not fully explained and justified in the THP?

☒ No ☐ Yes (explain below) ☐ N/A

The RPF identified two unstable areas within the proposed plan boundaries (U1 & U2). Both unstable areas were evaluated by the review team during the PHI. The RPF agreed to the following recommendations:

U1- The area above U1 in even-aged unit # 343 identified and mapped by the RPF as an area with slopes greater than 65% shall be excluded from timber operations. The RPF shall make all changes to the proposed plan narrative and maps as necessary to show this area no longer in the plan. Even-aged unit # 343 boundary shall be re-flagged prior to timber operations in this unit. Recommendation # 24

U2- The RPF shall flag the location of drainages facilities on the skid trail above the unstable area to the extreme EHR spacing for a distance of 200 feet. Recommendation # 25

The entire length of road from project P1 to unstable area U1 in unit # 343 shall be waterbarred to high EHR spacing. Recommendation # 26

38. Are proposed hazard reduction mitigations sufficient to prevent buildup of insect populations thus preventing the spread of disease?

☐ Yes ☒ No (explain below) ☐ N/A

39. Will proposed hazard reduction mitigations be sufficient to reduce risk to nearby structures and provide defensible space around buildings and along roads?

☐ Yes ☒ No (explain below) ☐ N/A

40. Comments/general observations regarding geology, EHR and hazard treatment.

In response to RTQ a, the RPF pursuant to 14 CCR 957.11 through 957.12 choose the application of performance based rules for slash treatment and hazard reduction. The RPF proposed a range of acceptable alternatives to treat slash and address hazard reduction around structures and within 50 feet and 100 feet of private and public roads respectively. As evidenced by first review team question # 4, the review team found aspects of the proposed performance based treatments unacceptable. During the

PHI the field review team also found aspects of the proposed treatments unacceptable and didn't feel that they, "provide a level of fire and pest protection to property and resources that meets or exceeds the intent of protection provided under 14 CCR 957 through 957.8." The proposed performance based treatments include potentially leaving slash piles within hazard reductions zones for up to 24 months. Depending on when the pile was created this could lead to a slash pile remaining for up to 21 months longer than permitted under 14 CCR 957.2. The review team believes the proposed range of acceptance which allows for piles to be only 50% consumed does not to meet the intent of 14 CCR 957 either. After much discussion the review team and plan proponent agreed to re-visit the performance based approach to slash treatment and hazard reduction, discuss a range of acceptable alternatives, alternative language for the plan and standards and treatments which afford a level of enforceability. This issue was not resolved during the PHI. The plan proponent shall work directly with the CALFIRE Fresno review team to develop a resolution.

ARCHAEOLOGY

NOTE: IF CONFIDENTIALITY IS REQUIRED OF YOUR RESPONSE, PLEASE PROVIDE THE RESPONSE ON A SEPARATE PAGE MARKED "CONFIDENTIAL".

41. Does the RPF's archaeological survey appear adequate based upon spot checks of potentially sensitive areas?
☐ Yes ☒ No (explain below) ☐ N/A
42. If sites are present, are the archaeological site descriptions and/or site records accurate with regard to site size, content, and mapped location?
☐ Yes ☒ No (explain below) ☐ N/A
43. If sites are present, is the proposed archaeological site protection adequate to prevent significant adverse impacts?
☐ Yes ☒ No (explain below) ☐ N/A
44. Comments/general observations regarding archaeology.

See attached report from CALFIRE Archaeologist Tony Overly which includes PHI recommendations.

WILDLIFE, FISHERIES, AND PLANTS

45. Are any state or federal (T&E) listed species or habitat present in the THP area?
☐ No ☒ Yes (explain below)

As stated by the RPF, habitat for the Northern goshawk exists within the proposed plan boundaries. One Northern goshawk observation occurred during plan layout, but outside any proposed harvest unit. Item #32, section II on page #18 & 19 discusses SPI's listed raptor policy.

46. Is a CESA or FESA consultation required? If questionable, contact DFG for assistance.

☒ No ☐ Yes (explain below)

47. Have impacts to wildlife and plants, including listed and non-listed species, been correctly assessed within the THP and appropriate protection provided?

☒ Yes ☐ No If not, discuss and list recommendations below:

Under item #32 on pages #18 through 20 the RPF describes listed species, their habitat, and SPI company survey protocol when listed and non-listed raptors, other wildlife and sensitive plants are discovered during timber operations. In addition, accurate descriptions of listed species and habitats can be found in the Biological section of the Cumulative Impacts Assessment, pages # 81 through 100 in section IV.

48. Is late successional forest present on this THP (14 CCR 959.16)?

☒ No ☐ Yes (explain below)

In response to RTQ d, the review team did not observe during field review any wildlife habitat relationships (WHR) 5M, 5D, or 6 within the proposed harvest units. DFG representative Applebee pointed out a small pocket not exceeding a couple acres in size of stand structure that may after stand measurements have qualified. The stand was on the southside of Blue Creek and west of unit #162.

49. If late successional forest is present and proposed for harvesting, will such harvest significantly reduce the amount and distribution of late succession forest stands, or their functional wildlife habitat value so it constitutes a significant adverse impact of the environment as defined in Section 895.1?

☐ No ☐ Yes (explain below) ☒ N/A

50. Are coho salmon considerations applicable to this plan?

☒ No (Go TO 59) ☐ Yes If yes, answer questions 51-58.
Explain all No and N/A responses in
Comments/General Observations.

51. Are proposed protection measures (zones and widths) for all watercourses adequate for the protection of coho salmon habitat?

☐ Yes ☐ No ☐ N/A

52. Is proposed total vegetation retention in the first 25 feet of the WLPZ of the post-harvest stand sufficient to provide shade cover over watercourses and maintain water temperatures? What is the percentage of shade cover over Class I and II watercourses?

Percentage of Shade Cover:

☐ Yes ☐ No ☐ Preharvest ☐ Post Harvest

53. If water temperatures were taken during the PHI or temperature information was supplied by the RPF, is water temperature relative

to coho habitat within the preferred temperature range?

☐ Yes ☐ No ☐ N/A

54. Will the post-harvest stand in the WLPZ provide for adequate recruitment of large woody debris on Class I and II watercourses?

☐ Yes ☐ No ☐ N/A

55. Are proposed erosion control and soil stabilization measures for the following adequate to protect coho habitat?

- a. Operations in the WLPZ (roads, landings, or tractor operations)?

☐ Yes ☐ No ☐ N/A

- b. Watercourse crossings (permanent and temporary)?

☐ Yes ☐ No ☐ N/A

- c. Winter operations?

☐ Yes ☐ No ☐ N/A

- d. Site preparation?

☐ Yes ☐ No ☐ N/A

56. Are protection measures adequate to deal with adverse impacts from significant rain events, even during the non-winter period?

☐ Yes ☐ No

57. Are protection measures adequate to prevent significant adverse impacts on downstream flows from water drafting operations?

☐ Yes ☐ No ☐ N/A

58. Will chemical treatments (herbicides, pesticides, or road treatments) be applied?

☐ No ☐ Yes If yes, answer a.

- a. Is an adequate buffer provided to assure nutrient sources are not supplied to watercourses?

☐ Yes ☐ No

59. Comments/general observations regarding wildlife and fisheries.

During the PHI the RPF agreed to:

Elaborate in the proposed plan on the Biological Assessment area scoping process, to include a justification of why the half mile area is sufficient for all species and their habitats.

Elaborate on the nature and type of correspondence, with whom, information received or not

received concerning late successional forest stands.

Elaborate on the nature and type of correspondence, with whom, information received or not received, estimated levels (number per acre, basal area per acre) concerning snags and oaks.
Recommendation # 27

CUMULATIVE IMPACTS

60. Are resource assessment areas appropriate?

☒ Yes ☐ No (explain below) ☐ N/A (for modified THP)

The plan appropriately established and described the geographic assessment areas for each resource subject listed in technical rule addendum #2 (watershed, soil productivity, biological, recreation, visual, and traffic) and explained the rationale for each.

61. Has the RPF correctly assessed the potential for significant cumulative impacts upon resource values within the assessment areas?

☒ Yes ☐ No (explain below) ☐ N/A

62. Has the RPF accurately listed all known past/present/future projects within the assessment area?

☒ Yes ☐ No (explain below) ☐ N/A

It appears the RPF has accurately listed all known past and future projects within the assessment area.

*****SECTION III*****

OTHER CONCERNS

63. Are there other concerns which are not covered under the subject areas listed above in PHI Report Items 1-62?

☒ No ☐ Yes (explain below)

64. Was a focused PHI conducted?

☒ No ☐ Yes If yes, note general comments and observations below in Item 66.

RESPONSES TO PUBLIC CONCERNS

65. Has the public raised concerns regarding the proposed harvest? If yes, list concerns and provide responses below:

☐ No ☒ Yes (explain below)

The Central Sierra Environmental Resource Center (CSERC) has submitted a letter of Concern dated April 21, 2008. The letter covers a number of concerns pertaining to resource values and treatment options which include, silviculture, oak resources, alternatives to harvest, deer range values, snags, special status species, at-risk amphibians, furbearers, watershed resources, herbicides and cumulative impacts.

Silviculture:

Oak resources: Under question #35 of section II the RPF describes how oaks shall be retained in retention areas and individually within even-aged units. The plan also states Black oaks exist within the proposed plan boundaries at a basal area level of 5 sq. ft per acre. Based on field observations this appears to be correct. A few oaks were observed scattered throughout proposed harvest units. It does not appear oaks are a limiting factor to the presence of wildlife species.

Deer range: most of the proposed plan area is identified as intermediate range for the Salt Springs deer herd, where the deer may stay for a few weeks while transitioning between winter and summer range. The proposed plan should promote a mosaic of vegetation, an increase in forbs, grasses and herbaceous shrubs and enhance forest edge attributes when compared to the existing pre-harvest conditions. This created condition in conjunction with oak retention standards should potentially enhance the area as useable deer habitat.

Snags: have been adequately addressed in the proposed plan document. During field review snags were observed in many areas and do not appear to be a limiting factor to the presence of wildlife.

Special status species: The plan addresses both the California spotted owl and the Northern goshawk, as well as 5 sensitive plant species..

At-risk amphibians, furbearers, watershed resources and potential herbicide use appear to be adequately addressed in the proposed document.

Cumulative impact: It is not likely that the effects of other projects or environmental changes will combine with this THP to cause significant adverse cumulative effects. Recommended changes resulting from the PHI, in conjunction with those mitigations already incorporated into the THP by the RPF should reduce the potential of adverse impacts. The cumulative effects analysis included in the THP presents data which supports the position that there is not a likelihood of significant adverse cumulative effects. No other agency to date has presented information to suggest that there would be significant adverse cumulative effects from the propose project.

66. Comments/general observations to other and public concerns.

*****SECTION IV*****

PHI REPORT RESPONSE

Registered Professional Forester's response to the CDF preharvest inspection recommendations for:

THP or Amendment # 4-08-05/CAL-1 Date _____

CDF RECOMMENDATIONS _____ --In Conformance.

TO REVIEW TEAM: _____ --Not in Conformance - Denial Recommended.

X --In Conformance if Recommendations Agreed

Upon.

 Yes X No -- PHI map attached as part of the recommendations.

The RPF indicated that the timber site classification had not been included on a THP map. The RPF shall indicate on the "General Location" map the entire plan area is site I timberland.

Recommendation #1

⇒ Response to Recommendation #1: Please see revised "General Location" map where the entire plan area shall be identified as Site I timberland.

During the PHI the RPF agreed to list in section III of the proposed plan the acreages for each of the clear cut units. Recommendation #2

⇒ Response to Recommendation #2: Please see additional page 43.1, where acreages for each of the clear-cut units is listed.

During the PHI the RPF agreed to remove the phrase "no harvest groups" from the proposed plan. Under item #38 section II of the proposed plan the RPF states, "Larger diameter conifer trees within the retention areas may be removed during harvest." Recommendation #3

⇒ Response to Recommendation #3: Please see revised Item #14. Additionally please also see revised Item #14 and Item #38 where the flagging code designating the WRA groups shall be changed to an ORANGE flag in combination with a WHITE flag. I.e. ORANGE and WHITE.

RPF shall change item #16 to include cable, high lead as a yarding system to be used during operations. Recommendation #4

⇒ Response to Recommendation #4: Please see revised Item #16

Shall change the wording under item # 20 to make it clear that ground-based equipment shall not be used in cable yarding areas or answer item #20 "YES". Recommendation #5

⇒ Response to Recommendation #5: Please see revised Item #20

As agreed to by the RPF during the PHI the THP maps on THP pages #26, 30 & 34 shall be changed to show the area north of watercourse 2F is not proposed for selective harvest this entry. Recommendation #6

⇒ **Response to Recommendation #6:** Please see revised THP maps on pages #26, 30 & 34

RPF shall change the appropriate THP maps to indicate the areas within unit # 350 which are greater than 50% slope. Recommendation # 7

⇒ **Response to Recommendation #7:** Please see revised map pages 33 & 34 and additional map page 38.1

RPF shall change the yarding system in portions of unit #338 from cable to tractor yarding and show the new road construction in unit #338 out to the break in slope to facilitate cable yarding of the lower portions of the proposed even-aged unit. RPF shall make all the changes to the proposed plan narrative and maps as necessary. Recommendation #8

⇒ **Response to Recommendation #8:** Please see revised Item #25 and please see revised map pages 24, 25, 26, 29, 30, 33 & 34

The RPF shall re-visit all 14 segments to determine their proper classification, then make the necessary changes to the proposed plan narrative and maps accordingly. All segments of proposed new road construction shall be described in the plan and established pursuant to 14 CCR 963. Recommendation #9

⇒ **Response to Recommendation #9:** Please see revised Item #25 and please see the revised map series labeled "Appurtenant Roads & Watercourses" where the temporary roads will be classified as "Existing Temporary Road" or "New Temporary Road". Also note that some road spurs were changed to temporary during the PHI and thus the number of temporary roads listed within the THP is now 16.

In addition, the lower WLPZ road in unit #162 is identified as a seasonal road. Project P2 includes the installation of a temporary culvert crossing of watercourse 2H to be removed after operations in this unit. The RPF shall re-classify this road as temporary and map accordingly in the proposed plan. Recommendation #10

⇒ **Response to Recommendation #10:** Please see revised THP maps that indicate this road as Temporary.

In addition, project P1 described under item #25, section II on page #12 involves new road construction. The RPF shall describe the new road construction including the approximate length of the new road proposed. Given the proposed new roads jump up gradient the entire segment of new road including sidecast shall be straw mulched and seeded or slash packed by "walking in" slash

Recommendation #11

- ⇒ **Response to Recommendation #11:** Please see revised Item #25 *Project List and Descriptions* where this recommendation shall be incorporated within THP project "P1".

The RPF shall include a statement in the proposed plan describing the obliteration of certain road segments and then when the decision is made as to which would be site prepped to bring more ground under production a minor deviation shall be submit amending the document. Recommendation #12

- ⇒ **Response to Recommendation #12:** Please see revised Item #25 where the following statement shall be added; "In the interest of providing more available acres for forest production. Site preparation activates may require the obliteration of some roads, or road segments, located within certain units where the Clear Cut silviculture has been proposed. When this determination has been made notification shall be submitted to CAL-FIRE in the form of a Minor Deviation."

As agreed to by the RPF during the PHI the proposed plan shall include a statement that NO landing shall be excavated at the terminus of the new road construction segment in unit #350. Recommendation #13

- ⇒ **Response to Recommendation #13:** Please see revised Item #38 where the following statement shall be added, "NO landing shall be excavated at the terminus of the new road construction segment in unit #350".

A second landing location shall be established in what appears to be an old borrow pit adjacent to the WLPZ road. This will shorten up the skidding length and log volume to any one landing ultimately reducing the potential for erosion and sediment concerns. If a landing slash pile is generated from timber operations in this landing, the pile shall have a berm established around it to prevent any ash from potentially migrating into the stream course. The inside ditch presently in place shall be maintained after operations in the landing are complete and prior to the winter period. To reduce the size of the potential landing pile, as much slash as possible shall be pushed back up the skid trail system. Only trees harvested from between the WLPZ road and Cherry Creek shall be skidded on the road. All trees above the road but still within the WLPZ shall be fell away and skidded out on a skid trail outside the class 1 WLPZ. The RPF shall make all the changes to the proposed plan and maps as necessary. Recommendation # 14

- ⇒ **Response to Recommendation #14:** Please see revised Item #27 and revised page 46 and revised map pages 29, 33 & 38

All of the existing WLPZ road drainage facility lead outs on Cherry Creek presently have 3 to 6 inch angular rock in them acting as energy dissipaters to catch sediment. The review team concluded the rock has been effective in reducing the potential for sediment delivery to adjacent Cherry Creek. All drainage facility lead-outs shall be re-rocked with similar size material prior to the start of the winter period the year of timber operations. The rocked area shall be the width of the lead-out and at least ten feet down or to the break in slope which ever is less. Recommendation # 15

- ⇒ **Response to Recommendation #15:** Please see revised Item #25 *Project List and*

Descriptions where this recommendation shall be incorporated as THP project "P6".

The RPF shall remove the phrase "if needed" from the statement, "If needed, dips or drivable waterbars locations shall be designated by the RPF." Under Road Segments within WLPZs, item #38, section II, page# 22. Recommendation # 16

⇒ **Response to Recommendation #16:** Please see revised Item #38 **Road Segments within WLPZs**

The RPF shall write an in-lieu practice to use the WLPZ road within unit #162 for skidding purposes. The RPF shall make all the changes to the proposed plan and maps as necessary. Recommendation # 17

⇒ **Response to Recommendation #17:** Please see revised Item #27 within section II and revised Item #27 explanation within Section III and revised map pages 30, 33 & 34 and additional map page 38.2

The RPF agreed to include this as a new project, P5. The crossing shall be rocked with 3 to 6 inch rock, the width of the road to a minimum depth of 6 inches. Rocking shall extend 15 feet either side of channel centerline. This project shall be completed regardless of whether the crossing is wet or dry at the time of use. The project shall be completed prior to the start of the winter period the year of use if dry or before use if wet. Recommendation # 18

⇒ **Response to Recommendation #18:** Please see revised Item #25 **Project List and Descriptions** where this recommendation shall be incorporated as THP project "P5".

P2 narrative needs to include the rock specifications described in P3. Recommendation # 19

⇒ **Response to Recommendation #19:** Please see revised Item #25 **Project List and Descriptions** where this recommendation shall be incorporated within THP project "P2".

In addition, a new project P4 shall be included in the proposed plan. P4 shall re-establish the outside berm on the seasonal road crossing of watercourse 31 in unit #364. The berm shall carry surface run-off away from the crossing to a new leadout approximately 100 feet down from the crossing. The existing dip above the 31 crossing shall be maintained. Recommendation # 20

⇒ **Response to Recommendation #20:** Please see revised Item #25 **Project List and Descriptions** where this recommendation shall be incorporated as THP project "P4".

The locations of all waterholes potentially to be used for dust abatement purposes shall be identified on the appropriate THP map. Recommendation #21

⇒ **Response to Recommendation #21:** Please see additional map page 39.1

RPF shall remove the asterisks (**) from the watercourse table for those watercourses not flagged to reduce the WLPZ width by 25 feet for cable yarding. Recommendation #22

⇒ **Response to Recommendation #22:** Please see revised Item #26, **WATERCOURSE TABLE**.

RPF shall amend into the THP document DFG 1600 series Stream Alteration Agreement (SAA) when approved. Recommendation #23

⇒ **Response to Recommendation #23:** The RPF shall amend into the THP document the approved DFG 1600 series Stream Alteration Agreement (SAA)

U1- The area above U1 in even-aged unit # 343 identified and mapped by the RPF as an area with slopes greater than 65% shall be excluded from timber operations. The RPF shall make all changes to the proposed plan narrative and maps as necessary to show this area no longer in the plan. Even-aged unit # 343 boundary shall be re-flagged prior to timber operations in this unit. Recommendation # 24

⇒ **Response to Recommendation #24:** Slopes greater than 65% exist within unit #343 and adjacent to U1, however this area is not part of U1. This area within Unit #343 where slopes are greater than 65% shall be excluded from timber operations. Please see revised Map pages 24, 25, 26, 29, 30, 33, 34, 36 & 39

U2-The RPF shall flag the location of drainages facilities on the skid trail above the unstable area to the extreme EHR spacing for a distance of 200 feet. Recommendation # 25

⇒ **Response to Recommendation #25:** Please see revised Item #21, **UNSTABLE AREA DESCRIPTIONS**, where the following statement shall be added, "The RPF shall identify the location of drainages facilities on the skid trail above the unstable area to the extreme EHR spacing for a distance of 200 feet."

The entire length of road from project P1 to unstable area U1 in unit # 343 shall be waterbarred to high EHR spacing. Recommendation # 26

⇒ **Response to Recommendation #26:** Please see revised Item #25 **Project List and Descriptions** where the following shall be incorporated into THP project "P1"; "The entire length of road, temporary and seasonal, from project P1 to unstable area U1 in unit # 343 shall be drained to the high EHR spacing."

Elaborate in the proposed plan on the Biological Assessment area scoping process, to include a justification of why the half mile area is sufficient for all species and their habitats.


Elaborate on the nature and type of correspondence, with whom, information received or not received concerning late successional forest stands.

Elaborate on the nature and type of correspondence, with whom, information received or not received, estimated levels (number per acre, basal area per acre) concerning snags and oaks.
Recommendation # 27.

⇒ Response to Recommendation #27: Please see additional page 67.1

RPF RESPONSE:

- X I agree to the above recommendation(s) and include the recommendation(s) and/or attachment(s) as part of the plan.
- I agree to the above recommendation(s) with the following exceptions as noted and explained below.
- I agree to an extension of the date of plan determination. Such extension is granted to _____ (Date).

 Date 5-20-08
RPF Signature

ISSUE 20: There was concern about the problem of the THP not being in compliance with 14 CCR 959.15 in respect to retention of oaks and the THP fails to consider the impacts to deer as a result of site preparation, piling and post burn treatments.

CDF Response......The Southern Forest District is the only district within the rules of the Board of Forestry and Fire Protection that has language specifically concerning retention of oaks where the preharvest timber stand contains 400 sq. ft. of basal area of oaks per 40 acres. The legislative history of this regulation comes from the time when there was a nine member advisory committee for the Southern Forest District appointed by the Board of Forestry and Fire Protection, called the Southern Forest District Technical Advisory Committee (SFDTAC). The "oak" rule goes back to the very beginning of rule language for the district that came into being shortly after the passage of the Forest Practice Act of 1973. It is clear from the language of the rule that there was no intent by the SFDTAC that this rule language be written as enforceable and absolute. Hence, the rule was always written as guidance and the "should be retained" language has persisted. The SFDTAC was very cognizant of the fact that black oak could be a hindrance to the growth of conifers by shading them out in the understory by out-competing conifers roots for available soil moisture, and given the legislative mandate for maximum production of "high-quality forest products", it was felt that preservation of oaks could create a situation in opposition to the legislative intent of the Act. Oaks were found by the SFDTAC to have an important consideration for wildlife, especially for forage production to provide nutrition to deer to aid in the success of fawning. The SFDTAC found, that where the presence of black oak or tan-oak became a hindrance to the legislative goal of maximum production of high quality timber products, they came down on the side of conifer production and therefore left the rule largely unenforceable with the "should be retained" language. Additionally, there was never an intent by the SFDTAC that the preharvest timber stand be somehow "averaged out" so that the rule would apply, for example, to a plot of one acre which happened to have 10 square feet of basal area or more. That is the reason for the 400 square feet per 40 acre limit in the rule. They wanted special consideration for oaks where they occupied a larger portion of the preharvest stand and were not just thrown in as an occasional individual in the preharvest stand. This is probably because they felt that the oaks were more important for deer fawning success at the lower end of the elevation range where they were sometimes found in amounts of 400 square feet per 40 acres and where they occurred as a component in the winter deer holding areas. Acorns were discussed by the SFDTAC as being an important food component for deer in the late fall and early winter in areas where the deer were migrating through and where they were staying or fawning in the winter holding areas. Acorns in the higher elevations of the Sierra were probably not necessarily thought to be needed for deer in those locations because the deer had likely already left the vicinity at the time the acorns had fallen. At higher elevations, oaks are not as prevalent as conifers due to snow breakage and they are only a minor forest component, usually less than the 400 sq. ft. per 40 acre threshold.

So with these three caveats, first that the rule was to be taken as guidance only and is not really enforceable; second, that the rule was only effective where the oaks were found in larger numbers in winter holding and fawning areas; and third, that the legislative intent of growing high quality timber products (i.e., conifers) took precedence, the RPF preparing the THP, and CDF and DFG in the Southern Forest District must weigh the relative importance of oaks in the stand. Currently the assessment area for this THP has approximately 10 - 30 square feet of basal area per acre of all hardwoods including oaks largely on USFS lands. On SFL lands, the amount of oak present is low and below the 400 sq. ft. of basal area per 40 acres, so the rule does not come into effect on the project area. However, approximately 2% of the clearcut acreage will be Wildlife Retention Areas that will be well dispersed one-tenth acre areas that consist of a variety of vegetation types and shall remain intact throughout the operation of this THP. Hardwoods will be retained within these areas, especially oaks, to provide habitat and food for wildlife. Oaks will recolonize the even-aged units over time as wildlife will move and jackpot acorns. Additionally, within both Alternative Prescription areas trees retained in groups or individually dispersed will include oaks. Most of the current hardwoods (including oaks) on SFL lands are located within riparian areas. No even-aged units are located within WLPZ as these areas are treated under a

Selection silvicultural prescription. SPI indicates that oaks are not proposed for harvest, therefore within the riparian areas being treated under a Selection prescription losses of oak should be minimal, if any. The even-aged units represent less than 2% of the assessment area. CDF finds that there will be some reduction in hardwoods including oaks as a result of this project, however when considered directly or cumulatively with past, present and reasonably foreseeable future projects, the amount is not determined to be significant.

Deer are an edge species and therefore the creation of younger successional stands are beneficial to deer. Oak retention is addressed in the THP and is determined to be reasonable. Operations on less than 2% of the watershed directly or taken in combination with past, present and reasonably foreseeable future projects will not result in a significant adverse impact on the deer. The THP adequately describes the potential impacts of this operation on the deer in the THP in the discussion in the biological assessment.

MAY 20 2008

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

Phone (209) 223-7170

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CAL-FIRE
1234 East Shaw Avenue
Fresno, CA 93710-7899

July 11, 2008

Ref: THP # 4-08-005 CAL (Squiggly THP)

Mr. Solinsky
Review team Chair

I have three concerns with regard to the current THP review process for the above stated THP.

Concern #1 - Additional Recommendations?:

A PHI for the above referenced THP was conducted on April 28 & 29, 2008. The PHI report was then received by the RPF shortly after the PHI was conducted. Second review was then conducted on May 13 and no additional recommendations were submitted to the RPF. DF&G then submitted their PHI report ADDRESSED to CAL-FIRE; dated May 8. Though the RPF received a copy of the DF&G PHI report, no recommendations were sent to the RPF from CAL-FIRE. On June 5 an additional 2nd review was held and again no additional recommendations were forwarded to the RPF. Then an additional DF&G PHI report was submitted to CAL-FIRE; dated June 27. CAL-FIRE then sent a copy of the report to the RPF.

What am I supposed to do? Both of the DF&G reports were submitted to CAL-FIRE, both are addressing CAL-FIRE, and both were submitted on either side of one of the 2nd reviews. Does CAL-FIRE review any of the reports from DF&G? Are these reports public Comment? Please provide some direction as to what is expected, if anything, from the RPF. I shall otherwise consider the reports public comment.

Reviewed by:	WOS
Dist. by:	CA
Dist. Date:	7/15/08
<input checked="" type="checkbox"/> RU	Tcy PS
<input checked="" type="checkbox"/> FR	2 TO
<input checked="" type="checkbox"/> WO	SA TLO
ARCH	LTO
RPF	OMG
INS	BOE
OTHER:	
FPS	
Status:	ROP

Concern #2 - PHI Reports:

With respect to the first DF&G PHI report dated May 8, 2008 the following statement is made on page 1 Paragraph #3: . . . " *The DFG has reviewed the report [CAL-FIRE PHI Report] and concurs with the recommendations contained within and no additional PHI report will be submitted by the DFG.* " (Emphasis added) On June 27, 2008 a second DF&G PHI report was submitted to CAL-FIRE with additional issues attached. Also the 2nd PHI report was submitted in the "Edit" (Draft?) format that exposed the lineouts and additions.

All of the attending agencies and parties provided comment at the PHI or shortly after the PHI. These comments were then incorporated into the PHI recommendations. What is the CAL-FIRE position on the acceptance of future PHI reports?

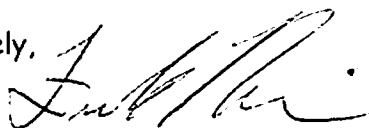
Concern #3 - 2nd Review:

Typically if any of the issues are not resolved within the RPF's answers to the PHI recommendations, the issues are then address at 2nd review. This allows the RPF and any interested agencies or parties to participate in the final resolution of any outstanding issues. The review process for his THP did not utilize second review for issue resolution, thus any outstanding issues remained outstanding. Second review is also an opportunity for CAL-FIRE to take the review process to the next level. It appears, unless there is a pending report, that 2nd for this THP was not only useless, but also detrimental since none of the DF&G PHI reports were addressed.

Shouldn't have CAL-FIRE, as the lead agency, addressed the DF&G report at one of the 2nd reviews? If there are no additional recommendations from the 2nd review process I would like a letter stating as such thus allowing me to advise the landowner that I represent to the best of my ability. Additionally I would appreciate the opportunity to participate in the 2nd review process, especially if there are additional agency comments.

I do not think it is unreasonable to know at any time within the THP process what is expected of the submitting parties and where the THP is in the process. Please provide comment to the above-described concerns such that the plan submitter and I can act accordingly.

Sincerely,



Frank Mulhair
Forester, RPF #2625

Sierra Pacific Industries

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CAL-FIRE
1234 East Shaw Avenue
Fresno, California 93710-7899

September 2, 2008

Ref: THP # 4-08-005 CAL (SQUIGGLY THP)

RECEIVED

SEP 04 2008

SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

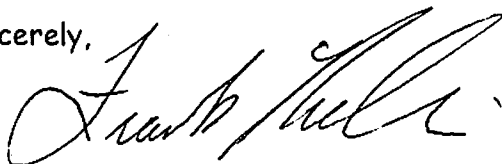
Reviewed by: <i>[Signature]</i>	
Dist. by: <i>SA</i>	
Dist. Date: <i>7/24/08</i>	
<i>ROTC</i>	PS
<i>WO 2</i>	TO
<i>WO SA</i>	TLO
ARCH	LTO
RPF	<i>DMG</i>
<i>INSP</i>	BOE
OTHER:	
FPS	
Status: <i>PeP</i>	

Dear Mr. Solinsky
Review team Chair

The following pages are in response to the Review Team Questions for the above referenced THP dated August 11, 2008. Please substitute the original THP pages with the enclosed "Revised" pages and please add the "Additional" pages attached to this letter.

Due to numerous page modifications and extensive page justification within Section IV, I am submitting to you an all revised Section IV. Not all of the pages have received a text modification, however nearly all of the pages have received a page justification change. Any of the pages contained within the THP that do not receive a replacement page, shall remain in place unless a response calls for a page removal.

Sincerely,



Frank Mulhair
Forester, RPF #2625

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

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CAL-FIRE

1234 East Shaw Avenue

Fresno, California 93710-7899

September 2, 2008

Ref: Response to the Review Team Questions for THP # 4-08-005 CAL (SQUIGGLY THP) dated August 11, 2008

Q 1. In regards to RT #1, a revised page 77 was not found in your response packet. Please provide a revised page 77.

RPF *This questions refers to 1st review question number 1 as follows:*

1. Item #18 on page 18 indicates that straw mulch will be applied to a minimum coverage of 75%, although as a mitigation to watershed cumulative impacts the plan states on page 77 that skid trails will have a minimum coverage of 80%. Please revise for consistency

RESPONSE TO QUESTION #1

Page 77 shall be revised for consistency

My reply included a reference to a revised page 77. However due to multiple page numbering modifications the corrected page is now page 84

Q 2. In regard to RT #13, please include the Notification of Lake or Streambed Alteration, or Addendum to the 1600 Permit at the end of Section II, and include any changes of Project P2.

RPF *The Notification of Lake or Streambed Alteration shall be moved to the end of Section II - Please see Additional Pages 23.1 to Additional Pages 23.11*

Q 3. In regards to RT #16 and PHI #27, page 67.1 describes scoping as being equal to determining the breadth *or extent* of the proposed project, which is entirely correct. The scoping process is the identification of species and habitats that may be impacted by the

project. Once potential species and habitats are identified an assessment area should be determined based on a geographic area where the proposed project may have the potential to create a cumulative impact to the identified species and habitats. The response to PHI #27 on page 67.1 provides the conclusion that there is low to no likelihood of species being affected and that the breadth of this project does not extend beyond 0.5 mile from the THP boundary. Since page 87 identifies that there are three known Northern goshawk sightings within one mile of the THP boundaries it is reasonable to conclude that the modification of habitat may create impacts to a raptor species that have a minimum range of one mile. Please reevaluate the Biological Assessment Area (BAA) or provide convincing evidence and justification why the half mile BAA is a sufficient distance in regards to the Northern goshawk.

RPF *The Biological Assessment Area (BAA) shall be changed to one (1) mile. Please remove page 67.1 from the THP and please see Revised Biological Assessment Area page 71 and additional Map Page 74.2*

Q 4. In regards to RT #19, a revised page 79 was not found in your response packet. Please provide a revised page 79.

RPF *This questions refers to 1rst review question number 19 as follows:*

19. Item #14(b) on page 4, and #1 of Watershed Concerns and Mitigation on page 78 states that at least 100 square feet of basal area will be retained within the WLPZ, although #1 of Water Temperature on page 79 states that at least 75 square feet of basal area per acre will be retained. Please revise for consistency.

RESPONSE TO QUESTION #19

Page 79 shall be revised to read "... at least 100 square feet ..."

My reply included a reference to a revised page 79. However due to multiple page numbering modifications the corrected Watershed Concerns and Mitigation & Water Temperature page is now page 85

Q 5. In regards to RT #20, please provide a replacement page 89 with revised California spotted owl information or a replacement page 89 that states "THIS PAGE IS INTENTIONALLY LEFT BLANK".

RPF *The page was left blank to justify document page spacing among the revised pages. However due to the multiple page numbering modifications a "blank" section is no longer necessary. Thus the response to 1rst review #20 shall remain as follows:*

RESPONSE TO QUESTION #20

The inclusion of this table is an editing error and said table shall be removed from the THP.

Q 6. In regards to RT #24, please state on page 101 of the Traffic assessment that there are no known existing traffic or maintenance problems if none are identifiable as per Technical Rule Addendum No. 2.

RPF *The following statement shall be added to the Traffic Assessment discussion on page 110:*

"No known existing traffic or maintenance problems are identifiable as per Technical Rule Addendum No. 2."

Q 7. In regards to RT #26, please provide requested information generated by initial review of the plan including:

- a. Providing a second notice to the appropriate Native American groups.
- b. Providing at least one person listed under persons contacted and then a discussion of that contact is to be provided in the Summary of your Prefield Research as per 14 CCR 969.1(c)(5).
- c. Provide a revised Archaeological Survey Coverage Map with the require scale of 1:24,000. The maps are also the wrong scale on the site records, and needs revisions.
- d. Please also respond to all of the recommendations included in the Archaeological PHI Report.

RPF *Please see revised Archaeological Addendum*

Q 8. In response to PHI #6 a portion of the area north of Watercourse 2F has been removed from the plan. Please revise the plan's acreage if necessary due to the reduction of selection silviculture harvest, or indicate if this was simply due to a mapping typo.

RPF *Please see revised Item# 8 & 14 and page 44*

Q9. In regards to PHI #17, the in-lieu map for Unit 162 referenced as page 38.2 was not found in your response packet. Please provide a revised page 38.2.

RPF *Please see additional page 38.2*

Q 10. In regard to PHI #24, it appears that Clearcutting Unit #343 has been reduced by approximately one (1) acre. Please revise Item #8 and Item #14 accordingly, and any other portions of the plan of reference to harvest acres including, but not limited to Addendum to Item #14 in Section III on pages 43.1 and 44.

RPF *Please see revised Item# 8 & 14 and pages 43.1 & 44*

Q11. PHI #27 ask for elaboration on the nature and type of correspondence and with whom regarding requested information concerning late successional forest stands, snags, and oaks available within the BAA. In Section IV on page 70 it is indicated that there was correspondence with Calaveras Ranger District and a letter was received from USFS representative Karl Graves stating there were no domestic water use, and no known wildlife issues, although the USFS is not listed as a downstream landowner on page 116. Please provide copies of the correspondence with the USFS.

RPF *This question was answered on the revised page 67.1 which shall be removed from the THP. However, page 67.1 answered the question as such:*

The information that was pursued during the scoping process from the neighboring USFS included:

- Requests for information of Surface domestic water use
- Archeological resources in the area
- Wildlife resources in the area, which may need protection
- Other resources in the area, which you deem important

No information was received from the USFS. However, all of the surrounding USFS areas were accessible during the preparation of this THP. These areas demonstrated much of the same to similar eco-tones and habitats with the added inclusion of some more mature stands than what is occurring within the plan area.

This answer still holds true. For clarity, information concerning late successional forest stands, snags, and oaks available within the BAA was NOT requested from the USFS. Much of this assessment was made during the landscape modeling process where qualified persons evaluated the entire WAA for the development of comprehensive tables concerning stand structure and composition that included hardwoods. If correspondence did occur during this process it is currently unavailable, however the data is available. Qualified individuals conducted this data gathering during the landscape-modeling phase. I then accessed this data during the scoping process where I physically evaluated the WAA to "ground truth" the modeled data. I utilized the "Walk & Look" methodology in combination with the "Drive & Look" methodology. Additionally, the surrounding area and the WAA was easily accessible during THP preparation and during the PHI thus allowing the review team and myself to observe conditions within and surrounding the WAA.

The USFS is not a downstream landowner since they do not contain class I, II, or IV watercourses that receive run off from the proposed plan. This information was requested from the USFS in an effort to develop a more complete database of information.

Q 12. In response to PHI #27 a new THP page was submitted numbered 67.1. The plan currently contain page 67.1 through 67.6 as assessment area maps. In addition, the second sentence of the last paragraph states "However, all of the surrounding USFS areas where accessible during the preparation of the THP." Please provide a revised page indicating were accessible, and identify the new page as 67.7.

RPF *Please remove the submitted above referenced page 67.1 from the THP*

Q 13. Please respond the DFG Recommendation included in their PHI Report dated May 14, 2008.

RPF *Below I have restated the DFG Recommendation included in their PHI Report dated May 14, 2008. For clarity I have addressed each of the conditions listed within the recommendation separately; as designated by RPF. Please see my responses below and please see revised pages 22.1 & 23 where these additional conditions are listed.*

- **Recommendation #1** The DFG recommends that the RPF include the proposed water drafting activities in Section II of the THP.

WATERHOLES AND DRAFTING

- 1) Waterholes are authorized for this timber harvesting plan only. Use of the waterholes for drafting is not authorized for any other timber harvesting plan.

RPF: Some of the waterholes that may be utilized for drafting within this THP also service adjacent approved THPs. Additionally these waterholes are also utilized for more than dust abatement; such as wild land fire fighting, planned broadcast burning, hazard fuel reduction pile layout, road maintenance, etc. . . This recommendation is not feasible.

- 2) The water truck operator shall have a copy of the streambed alteration agreement and shall be familiar with all conditions.

RPF: No streambed alteration agreement is associated with this mitigation / protection measure, thus requirement #2 is irrelevant and shall not be incorporated into the THP.

- 3) Drafting water from within or downstream of a known sudden oak death infestation area or adjacent watersheds of known infestation areas shall disinfect water truck storage tanks before operating in other watersheds area. Disinfection procedures are available from the Department.

RPF: There are no known areas within this or the adjacent watersheds that contain infestations of sudden oak death (SOD) thus requirement #3 shall not be incorporated into the THP.

- 4) For Class I waters with State or Federal listed fish species present, all water drafting shall be conducted in accordance with DFG's "Guidelines for Temporary Water Drafting from Streams and Rivers Supporting Anadromous Salmonids; Special Application for Timber Harvest Activities" (August 2000).

RPF: No State or Federal listed fish species are present within the Class 1 waters within this THP, thus requirement #4 shall not be incorporated into the THP

- 5) No removal of vegetation or materials from the stream is authorized unless otherwise specified in the project descriptions contained in this agreement.

RPF: Since this is not an agreement [LSAA] there are no project descriptions contained in an agreement, thus requirement #5 shall not be incorporated into the THP.

- 6) Water drafting trucks are permitted to park on authorized truck pads for drafting activities.

Trucks may not be driven on stream banks, stream beds, the dry channel, or the active channel at any time.

RPF: I am unaware of what is required to obtain an authorized truck pad. The FPR already disallows Trucks being driven on stream banks, streambeds, the dry channel, or the active channel at any time. ALL of the water drafting sites associated with this THP utilizes an established truck pad containing 4 inch minus drain rock and a brow log; as demonstrated on the PHI. The truck pads at the water drafting sites associated with this THP are in good condition and do not currently require maintenance.

- 7) To minimize sediment production, truck pads [and road approaches] shall be treated with at least four inches compacted depth of rock, pavement, or chip-seal, and shall include a brow log or large rock sufficient in size to act as a barrier between the truck pad and the watercourse.

RPF: ALL of the water drafting sites associated with this THP utilizes an established truck pad containing 4 inch minus drain rock and a brow log; as demonstrated on the PHI. The truck pads at the water drafting sites associated with this THP are in good condition and do not currently require maintenance.

- 8) Class I watercourses with a temporary, partial dam to create a drafting pool shall provide fish passage for all life stages of fish. Temporary dams shall be removed when operations are complete.

RPF: The use of a temporary pool or creation of any structure that alters a Class I watercourse is not planned for this THP, thus requirement #8 shall not be incorporated into the THP.

- 9) The water truck operator shall have absorbent pads with the water truck at all times. The pads shall be used when any oil is dripping, or has potential to drip, from the water truck.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 10) No soil or other material shall enter into the watercourse from foot traffic on the bank to access the waterhole for drafting activities.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 11) No soils or sediment laden water shall be allowed to enter the waterhole or overflow into the channel from water drafting hoses, the truck intake, or any other water drafting activities.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 12) At no time will drafting operations result in a flow less than 2.0 cubic feet per second (cfs). If the natural flow is less than 2.0 cfs, drafting shall cease. Flows shall be determined prior to each drafting withdrawal.

RPF: This recommendation is not feasible. Some of the streams with established historic waterholes do not achieve this level of flow; ever. None of the off channel waterholes achieve this level of flow. This protection measure appears to be taken from language that is utilized within LSAA outside of the scope of this THP and is not relative to the present conditions and therefore would incorporate an unnecessary and infeasible requirement into the THP. Requirement #12 shall not be incorporated into the THP.

- 13) Instantaneous drafting rate shall be less than 350 gallons per minute (0.78 cfs)

RPF: Some of the streams with established historic waterholes do not achieve this level of flow; ever. None of the off channel waterholes achieve this level of flow. This protection measure appears to be taken from language that is utilized within LSAA outside of the scope of this THP and is not relative to the present conditions and therefore would incorporate an unnecessary requirement into the THP. Requirement #13 shall not be incorporated into the THP.

- 14) If drafting from a pool within the watercourse channel, reduction in pool volume will not exceed 10%.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 15) Pump intakes that take water from surface flow shall be fitted with mesh bags or screens designed to the following Department of Fish and Game specifications:

- a. Round Openings: Round openings in the screening shall not exceed 2.38 millimeters (3/32 inch).
- b. Square Openings: Square openings in screening shall not exceed 2.38 millimeters (3/32 inch measured diagonally).
- c. Slotted Openings: Slotted openings shall not exceed 1.75 millimeters (0.0689 inch) in width.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 16) Water truck operators shall inspect and clean the screen surface before each use.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 17) The velocity of water across the screen surface shall not exceed 0.33 feet per second at any point on the screen surface. To achieve this standard, the screen shall be kept clean and free of accumulated algae, leaves or other debris which could block portions of the screen surface and increase approach velocities at any point on the screen. The screen shall be supported above the bed of the streams so that no part of the screen surface is obstructed.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- 18) Screens may be constructed of any rigid material, perforated, woven, or slotted that provides water passage while physically excluding aquatic species. The largest possible screen open area that is consistent with other project requirements should be used. Reducing the screen slot velocity is desirable both to protect aquatic species and to ease cleaning requirements. Care should be taken to avoid the use of materials with sharp edges or projections, which could harm aquatic species.

RPF: These suggestions will be conveyed to the LTO

- 19) Stainless steel or other corrosion-resistant material is the screen material recommended to reduce clogging due to corrosion. Care should be taken not to use materials deemed deleterious to aquatic species and other wildlife.

RPF: These suggestions will be conveyed to the LTO

- 20) Off-channel waterhole provisions:

- a. Filling of the water hole shall be gravity fed.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- b. Off-channel waterholes shall be constructed with a gently sloping bank to allow for escape by animals.

RPF: Construction of new Off-channel waterholes is not proposed within this THP. All of the waterholes associated with this THP exist and contain at least one gently sloping bank to allow for escape by animals.

- c. Off channel waterholes shall incorporate a pipe or rocked channel to allow for 20% of the surface flow to continually flow from the waterhole. If the water hole is located upstream of a road crossing, the overflow from the water hole shall be returned to the channel upstream of the crossing.

RPF: This recommendation is confusing. All of the off channel water drafting sites associated with this THP utilizes an established and rocked overflow. These overflows allow for 100% of the INTAKE FLOW to continually flow from the waterhole - when the waterhole is full.

The OUTTAKE/OVERFLOW will be less than 100%, in some cases 0%, of the INTAKE FLOW during the filling of a water truck. Overflows will allow 100% of the intake flow to continually flow from the waterhole when the waterhole returns to full capacity. To achieve the standard of "20% of the surface flow to continually flow (during the filling of a water truck) from the waterhole" would require the installation of an additional pipe much lower than the overflow that would in turn greatly impair the recharging of the waterhole and provide no additional resource protection.

The function of the overflow cannot be utilized until the waterhole is full, then the overflow equals the inflow. The waterhole cannot be greater than 100% full, thus if 20% is continually flowing, where does the other 80% go? Why does one continually provide for 20% of the water entering a waterhole to flow out of the

waterhole? This recommendation is infeasible and will not be incorporated into the THP.

- d. An off-channel waterhole shall not divert more than 20% of the flow from the watercourse, as measured immediately upstream of the diversion point at any time.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- e. The pipe inlet shall be screened to preclude the entrainment of aquatic amphibian life stages and all fish life stages. Temporary pipes used to feed the waterhole shall be removed prior to November 15 of each year.

RPF: This protection measure shall be incorporated into the THP. Please see revised Item #38

- Q 14.** On page 6 in regards to Site Preparation Addendum identifies Craig Ostergaard as being retained as the RPF to provide professional advice to the LTO and Timberland Owner upon request. Please provide the RPF number of Mr. Craig Ostergaard.

RPF Please see revised Page 6

- Q 15.** A recent court decision has emphasized certain requirements that need to be addressed in the cumulative impacts assessment included in Timber Harvesting Plans. In addition to including a clear rationale for the selection of each assessment area, which you have provided, it is necessary to disclosed all past, present, and future projects in all of the assessment areas. As per 14 CCR 952.9, under Past and Future Activities of Technical Rule Addendum No. 2, past and future projects included in the cumulative impacts assessments shall be described as defined in 14 CCR 895.1 within described resource assessment areas. You have provided past and future projects within the Watershed Assessment Area (WAA), but not for the other resource assessments areas. Please provide this project information for all of the assessment areas. A table for the Biological Assessment Area (BAA) similar to the WAA table may be helpful in discussing past, present and future projects within the BAA.

Each resource assessment area should have at least a discussion identifying projects, if any, and how they have been considered. Please note that projects are not limited to only THPs, but includes all publicly permitted projects (state, fed, county, city). Other land disturbing activities in the assessment area should also be disclosed (subdivisions, highway construction etc). Also, remember to consider present and future publicly permitted projects, not just past projects.

RPF Please see revised IDENTIFICATION OF RESOURCE AREAS within section IV of the THP.

- Q 16.** As per 14 CCR 952.9 and Technical Rule Addendum No. 2, under Past and Future Activities requires a map of the boundary of the Planning Watershed with the CALWATER 2.2 identification number. Please provide the CALWATER 2.2 number on the Assessment Maps on pages 67.1 and 67.2.

RPF Due to multiple page numbering modifications the corrected pages are now revised pages 74.1 and 74.2.

Q 17. As per 14 CCR 952.9 and Technical Rule Addendum No. 2, the identification of resource area shall be shown on a map where a map adds clarity to the assessment. Please provide a map of the Visual Assessment Area for clarity unless the visible area within three miles is the same as the WAA, which should then be referenced.

RPF *The following shall be added to the Visual assessment area selection rationale:*

The visible area is not entirely within the WAA, however it is likely that nearly all of the visible area is. The very small "windows" where the Visual assessment area may breach the boundaries of the WAA cannot be accurately identified on a map. Thus creating a map will not add clarity to the assessment area. For the purpose of assessment the Visual Assessment Area shall be contained entirely within the BAA.

Please see revised pages 72, 109 & 110

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

Phone (209) 223-7170

Fax (209) 223-7175

CAL-FIRE
1234 East Shaw Avenue
Fresno, California 93710-7899

September 15, 2008

Ref: THP # 4-08-005 CAL (SQUIGGLY THP)

RECEIVED

SEP 17 2008

SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

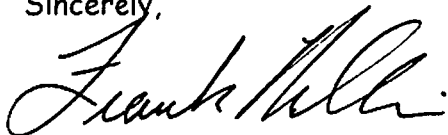
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ARCH	LTO
RPF	DMG
INSP	BOE
OTHER:	
FPS	
Status:	POP

Dear Mr. Solinsky
Review team Chair

The following pages are in response to the e-mail from CAL FIRE to the RPF dated September 8, 2008, and in response to continued discussion between the DF&G and the RPF.

Please substitute the original THP pages (or previously revised pages) with the enclosed "Revised" pages and please add the "Additional" pages attached to this letter.

Sincerely,



Frank Mulhair
Forester, RPF #2625

Sierra Pacific Industries

Martell District - Forestry Division - P. O. Box 132 - Martell, CA 95654

Phone (209) 223-7170

Fax (209) 223-7175

CAL-FIRE
1234 East Shaw Avenue
Fresno, California 93710-7899

February 13, 2009

Ref: THP # 4-08-005 CAL (SQUIGGLY THP)

RECEIVED

FEB 19 2009

SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

Reviewed by	WDS	
Dist. by:	WDS	
Dist. Date:	2/12/09	
RU	TCU	PS
CG	2	TO
WO	SA	TLO
ARCH		LTO
RPF		OMG
INSP		BOE
OTHER:		
FPS		
Status:		POP

Dear Mr. Solinsky
Review team Chair

The following pages are in response to the Review Team Questions dated January 14, 2009 and in response to submitted public comments for the above referenced THP. Please substitute the original THP page with the enclosed "Revised" page and please add the "Additional" pages attached to this letter.

Sincerely,



Frank Mulhair
Forester, RPF #2625

Sierra Pacific Industries

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MAR 02 2009

SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

CAL-FIRE

1234 East Shaw Avenue

Fresno, California 93710-7899

February 25, 2009

Ref: THP # 4-08-005 CAL (SQUIGGLY THP)

Dear Mr. Solinsky
Review team Chair

Reviewed by:	<i>[Signature]</i>
Dist. by:	
Dist. Date:	
RU <i>5/24</i>	PS
EG <i>2</i>	TO
WO <i>25A</i>	TLO
ARCH	LTO
RPF	DMG
INSP	BOE
OTHER:	
FPS	
Status:	<i>RPF</i>

The following pages are in response to the Review Team Questions dated February 23, 2009 for the above referenced THP. Please substitute the original THP pages with the enclosed "Revised" pages attached to this letter.

With regards to Review Question #1: Please see revised page 15

With regards to Review Question #2: Please see revised page 17

With regards to Review Question #3: Please see revised page 63

With regards to Review Question #4: Please see revised page 99

With regards to Review Question #5: Please see revised page 109

With regards to Review Question #6: Please see revised page 109

Sincerely,



Frank Mulhair
Forester, RPF #2625